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ABSTRACT

This document, intended for use by those who might wish to implement such a program, describes an inservice teacher self-improvement program based on goal setting by the teacher, practice of new skills, feedback about teaching performance, and self-analysis of the dissonance between goals and practice. Chapter 1 presents rationale and history of the program, which has undergone two years of development and testing in real school situations. Chapter 2 deals with factors a prospective leader must be concerned with before working with Field Action Units (FAU's) of four to six participating teachers, e.g., working with administrators, selecting participants, time, cost, materials and equipment. Chapter 3, the training design itself, has four sections: (1) the three-phase implementation (leader teaches use of tools; FAU's analyze teaching behavior; teachers provide self-direction); (2) the seven-part improvement strategy (seek goal statements, collect and order data, analyze and interpret data, select behavior to be changed and plan strategy, practice behavior and analyze practice session, try in the classroom, evaluate change and plan next activity); (3) program flow chart; (4) suggestions for FAU meeting. Chapter 4 reviews procedures for program evaluation and presents results of field trials. Appendixes include lists of books and materials which can be purchased and manual-type materials on interaction analysis, behavioral objectives, microteaching, teaching skills, and student feedback. (JS)

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TEACHING BEHAVIOR IMPROVEMENT PROGRAM

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TEACHING BEHAVIOR IMPROVEMENT PROGRAM

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FOREWORD

The most potent single, controllable variable in school-based education is teaching behavior. Other researchers have tried to affect teaching behavior through knowledge of content, curriculum materials, attitudes, and other variables. The MOREL Teaching Behavior Improvement Program deals directly with the behavior of the teacher. In essence it is a self-improvement program based on goal-setting by the teacher, practice of new skills, feedback about teaching performance, and self-analysis of the dissonance between goals and practice. After successfully developing this inservice education strategy, MOREL designed and operated a leader training component which has prepared 49 educators in the Michigan-Ohio region to use the program.

Dr. Lilburn P. Hoehn, Program Director, has ably carried out the major leadership responsibility for this program. He helped conceive the strategy; coordinated the efforts of staff in trial, evaluation and redesign cycles; monitored the documentation and diffusion effort and wrote most of this final report on the program. Dr. Hoehn deserves much of the credit for the development of a teacher education program that not only improves teaching performance, but results in continuing improvements following the treatment.

Other staff who participated in the development work are named in Appendix L. In addition, we have benefited from prior research by educational scientists and by direct consultation from some of the current leaders in teacher education. Special recognition is given to Professor Ned Flanders, University of Michigan, who helped immensely with the initial design and served as Senior Program Consultant for many months.

Forward-looking school districts usually can be found experimenting with new ideas. We have valued the participation of many persons from the school districts where the Teaching Behavior Improvement Program was tested and revised. Participating districts were Detroit, Grandville, Inkster, Livonia, Pontiac, and Toledo. Leaders have been trained from other districts to carry on the program.

Even though this development work is not fully completed, it is a pleasure to be able to share with the educational community this description of the results of a major educational development effort. We have (1) confronted an important educational problem, (2) brought to bear sufficient research and personnel resources to produce a prototype solution, (3) tried, evaluated and redesigned the strategy in real teaching situations, (4) documented the costs and effectiveness of the model, and (5) now report the work in this document. Although the program described here is a third generation model, it should not be viewed as a finished product. Each user will (and should) further develop his own better model.

We do have a major caution to bring to the attention of potential users. The strategy described here is based on existing goals that teachers have for their students and themselves. The Report of the National Advisory Commission on Civil Disorders (The Kerner Commission Report) highlights the extent to which racism pervades the institutions of America including the schools. Another MOREL program, Combating Racism in Education, has given us direct experience in dealing with racism in educational institutions. In the MOREL Teaching Behavior Improvement Program we have created an exceedingly powerful tool for extending and improving teaching performance based on existing teaching goals. However, since this program is limited in its influence on what those goals might be, it may, in its effectiveness, help a racist institution (and they all are racist to some extent) to be better at all that it does, including its racism. We feel that harmful racist attitudes and behaviors so permeate the American society that special concern for them must be given in any program designed to influence the instructional program. At this point, we simply warn the potential user of the power of this program and urge him not to limit his concern to the more technical aspects of improving education.

Finally, we believe that, although this program was developed as an inservice teacher education strategy, it has meaning for the preservice education of teachers as well.

Stuart C. Rankin
Executive Director

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Chapter I

OVERVIEW

Introduction

This document contains a description of the Teaching Behavior Improvement Program developed in 1967-1969 by the Michigan-Ohio Regional Educational Laboratory (MOREL). This program has been designed for implementation in an inservice setting and has undergone two years of development and testing in real school situations. The program is presented here in sufficient detail to enable others to implement it in their own situation through self-training. Prior to the program description a description is given of the need, rationale and history of the development of this program.

Need and Readiness

The program was developed in response to needs identified through various sources including nine hundred interviews conducted with educators and laymen throughout the states of Michigan and Ohio. This survey clearly indicated the need for programs which could improve the effectiveness of practicing teachers. Other than the survey conducted by MOREL, the need for such a program has been indicated by the American Association of Colleges of Teacher Education, American Federation of Teachers, the NEA, and the U. S. Congress through creation of the Education Professions Development Act.

Having already determined that the mission of the Laboratory was to produce programs which were basically self-renewing in nature (i.e. programs which are oriented toward the user's ability to direct his own continuing improvement regarding his role as an educator.), the next step was to create a program that helped teachers become more effective and at the same time was basically of a self-renewing nature. Another requirement was that the program be a replicable process, set of processes, and/or products which produce desirable goals and which can be installed in educational institutions. Such an effort required a search of existing research and resources in the general area of improving teaching effectiveness which were oriented to the real classroom and which could be learned and used by practitioners. The basic resources available for the development effort were:

a. past research by Flanders and others on interaction analysis;
b. the work of the Standord University R & D Center and Micro-training Center on teaching skills and feedback;
c. the work of Lippitt and others in group action and the utilization of scientific knowledge;
d. the work of Amidon, Bales, Cyphert, Flanders, Galloway, Hough, Hughes, Medley, Openshaw, Simon, Smith and others in teaching behavior and teaching effectiveness;

e. the experience of the MOREL staff in conducting inservice education programs aimed at self-directed improvement; and
f. the services of Professor Ned A. Flanders as senior program consultant during the early design and staff training stages.

Rationale

In developing an inservice program focusing on improving teaching effectiveness, the staff of MOREL considered and rejected a number of possibilities. Many programs (a) improve instructional technology or materials, (b) change the organizational pattern of the school, (c) modernize the instructional content to emphasize ideas and concepts, (d) replace drill with inquiry, or (e) individualize and make independent the learning process. Many of these attempts are efforts to build teacher-proof materials or programs. They are effective only to the extent that teachers and pupils begin acting differently in the classroom. Since all improvement attempts lead eventually to teaching behavior or teaching effectiveness, why not start there?

Focus on Teacher

The learning of children is influenced by a number of factors. Among the most potent of these are the home environment, community attitudes, available financial support, the school environment, the learner and the teacher. Even though the above and others are potent factors, all are not equally controllable. For example, environment and community attitudes are less controllable than the school environment, the learner, or the teacher. As teachers have a great influence on factors such as school environment and the learner, and as the teacher is more controllable than major non-school influences, MOREL chose the classroom teachers as the target of its development effort.

Focus on Teaching Behavior

If the single most potent and, at the same time, controllable factor in the learning of children is the teacher, then the behavior the teacher displays in the classroom is a most important factor in the teaching process. Teachers devise strategies and procedures for relating content, materials, and events to the learning of children. The MOREL improvement program focuses on teachers' ability to develop improved teaching strategies and procedures which, in turn, lead to improved and increased student learning--thereby striking at the heart of the teaching-learning process.

Focus on Field Development

In many cases educational improvement programs have been developed in a setting apart from the setting in which they are to be used. Rather than bridge the gap between research and practice some programs extend the gap and continue to alienate the practitioner from the researcher. MOREL felt that by testing the initial prototype and gathering data for revisions by going into the classroom setting, the program would be more related to the user and at the same time the user could become a learner of the development process. By working with teachers in the reality of their situation and by being able to observe and assess the effects of improvement efforts, the chances of developing a program closely related to user needs were increased. The Field Action Unit structure designed by MOREL facilitates program development in the field, helps teachers learn to work together for mutual benefit, and provides the vehicle for continuing improvement after the MOREL specialist departs.

It was impossible for MOREL to operate Field Action Units in schools throughout Michigan and Ohio. Therefore, both components, teacher training and leader training were developed. The teacher training component was focused on (1) gathering input with regard to procedures, materials, and tools to help teachers become self analyzers and directors of their own improvement efforts; and (2) the role requirements for the inservice leader in such a program. Once the teacher training component was developed, MOREL undertook the training of inservice leaders to implement the program in local schools and other educational institutions.

Focus on Self-Direction

As alluded to earlier, MOREL chose to develop its programs with the idea of expanding educators' ability to direct their own improvement efforts rather than develop programs of a prescriptive nature. The defining concept for such programs has been "self-renewal." There is a system of behavioral variables related to the construct, self-renewal; but self-renewal, the construct, is not a measure of quantity in the sense of a phenomenon in isolation. Rather, self-renewal is a theoretical term used to describe an emphasis on the user's ability to learn and continually use a process of identification, analysis, and improvement on problems of teaching and learning. To accomplish this it is necessary to have a clearly definable set of procedures and tools whereby a professional can learn to identify, analyze, and experiment with solutions to those problems.

The heart of such a program is feedback which is the central fiber of MOREL's Teaching Behavior Improvement Program. Feedback produces conflict or dissonance, which in turn is necessary for improvement. Few human beings are likely to change in an improved direction unless they see dissonance or conflict between what they are doing and what they think they are doing. However, conflict alone is not sufficient to bring change; it is only a beginning point. Conflict must be followed by clear-cut problem identification, analysis, attack on the problem, and evaluation. Programs which emphasize the learning of specific facts about teaching and methods of presenting the curriculum belong to a deterministic linear system--each of a succession of events is planned in advance of action. On the other hand, programs which emphasize feedback allow alteration between and within events based on the movement of the learner. Thus when feedback is used, part of the output system can be fed back as input. The interpersonal teacher-pupil relationship is seen as a feedback loop, since the behavior of the teacher affects and is affected by the behavior of the students.

MOREL's rationale is that when teachers are provided accurate and appropriate feedback about the effects of their teaching, and when such feedback is tied to a set of improvement procedures, they will move closer to becoming self-aware, self-renewing professionals. MOREL's design called for isolating the process, or steps in a procedure along with the necessary tools that would increase the chance that feedback data would be (1) sought, (2) interpreted appropriatelly and (3) utilized. Such a process has been developed and is the subject of this document.

Operational Strategy

The inservice leader using MOREL's Teaching Behavior Improvement Program will want to consider carefully the following ideas as they relate to specific procedures in chapters II and III of this document.

A teacher who exhibits self-renewing teaching behavior constantly seeks and receives "proper" feedback about specific behaviors. When this feedback is positive, the behavior is continued and becomes a part of the teacher's repertoire; when the feedback is negative, it produces change.

What produces a desire in a teacher to seek feedback? How does the teacher learn to accept it? When does he know if he has interpreted it properly? The inservice leader provides a setting which maximizes the incentives for looking at one's own teaching behavior. Teachers who participate in the program should be provided with some released time from some of their school duties in order to maximize their opportunities. The program must be sanctioned by the school superintendent and the principals, and teachers should participate in the program on a voluntary basis in order to make the setting more appropriate for change.

The task of the inservice leader becomes one of assisting the teachers to seek, receive, accept, and properly interpret information about their teaching behavior.

Teachers enter the MOREL program with different degrees of awareness of their own rules of behavior and interaction; in fact for some, the patterns habitually followed may be totally outside their awareness. It appears that teaching patterns may show levels of consciousness similar to Freud's postulates for slips and errors: (1) they may be clearly within a person's awareness; (2) a person may be unaware of them, but able to recognize them when brought to his attention; (3) they may be so far from a person's awareness that even if they were defined correctly and pointed out to him, he would still be unable to see them. In view of the differences among teachers, there is a need for different approaches to assisting them.

The inservice specialist, using some individual conferences but also taking advantage of the effectivness of group processes and group interaction, attends to these individual differences, while he attempts to bring the teachers in the group to the point of looking at their own behavior. He uses discussion and confrontation, he emphasizes the model of inquiry, and he helps the teachers state their teaching objectives in behavioral terms.

When the teachers are willing to look at themselves, the inservice specialist maximizes the probability that they will "see." He does it by using objective techniques such as interaction analysis, micro-teaching, and the use of student feedback instruments to quantify their behavior. The results are then interpreted and properly fed back to the teacher. When the feedback is positive, the teacher is encouraged to maintain and stabilize that pattern of behavior; when the feedback is negative, change is encouraged and the specialist assists the teacher in expanding his repertoire of behaviors and, with the assistance of the other teachers, offers appropriate alternative behavior.

As the teachers become more aware of their behavior, they seek to become self-regulating. They request that their behavior be observed; they learn to use the feedback techniques and to properly interpret the results. They design-test-redesign-retest their behavior until they receive the feedback they desire. When the program is concluded, the teacher has acquired the attitudes and skills necessary to exhibit self-renewing teaching behavior.

Development Strategy

MOREL has developed the Teaching Behavior Improvement Program through a two-component design. Those components are teacher training and leader training. The first component was for the purpose of developing the elements of the program and putting them together in a workable mode while the second component was to develop a program to train leaders to implement the TBIP.

Initial development of component one began in the spring of 1967 when MOREL selected the problem (improving teaching behavior) and began a search of the literature and research to determine what was known and what had been done related to the problem. After the search three tools were selected for the initial field test. These were Interaction Analysis, simulated social skill training and Micro-teaching.

The next step was to design a plan for working with a small group of teachers in their setting. It was decided that a MOREL staff member would go into schools and work with a group of four to six teachers who were willing to work with outsiders in studying their teaching behavior and willing to try to assist MOREL in building a program that helped teachers use various feedback techniques in improving their own teaching. During the fall and winter of 1967-68, MOREL entered three schools to work with small groups of teachers to give an initial trial to the program prototype. The nature of the evaluation was formative in that staff members constantly tried to answer the questions, "What worked?" "What didn't work or didn't seem to work?" "Why?" "Why not?" "What would we do differently?" Through generating answers to such questions, the staff was able to generate a new design for trial during the summer of 1968. The second design was narrower in scope and the behavior of the inservice leader was more goal-oriented. After trial in ten schools and subsequent evaluation, the design was revised again, and it become more goal-oriented. The third design was tested in two schools during December-March, 1968-69. The design given in chapter three of this document is, therefore, the result of three trials, and three revisions.

The second component, leader training, actually began during the summer of 1967 when MOREL began training its own staff to go into schools and develop the program. Such training was both formal and informal. Much was learned about the tasks an inservice leader must perform and the most productive ways to perform such tasks. In addition to actual work with teachers MOREL staff learned a great deal about entry into schools, working with principals and various other requirements for adequate implementation.

In September, 1968, the staff began designing a program for training non-MOREL persons to implement the Teaching Behavior Improvement Program in their own schools. The leader training program design was first tested in December, 1968, in a two-week workshop with eleven persons from Michigan and Ohio. The first workshop was successful; however, the staff felt some changes should be made. Again using a design-trial-evaluate-redesign cycle, MOREL has conducted four successful workshops. For information about that design and the names of persons who could assist in a leader training workshop, see the separate document on the Leader Training Program of the Teaching Behavior Improvement Program and the appendix of this document on resource persons.

What is the Value of This Program to Schools?

If you are seeking an inservice program which can be implemented in your schools using your own staff and which focuses on the improvement of classroom teaching, you will find the Teaching Behavior Improvement Program valuable. Through a thorough study of chapters II, III and IV of this document and with considerable effort expended by a prospective leader, the program can be implemented with success on a first attempt. Of course, later attempts are likely to meet with greater success. The person who is planning implementation must carefully study this document to determine exactly what the program is and what is involved in implementation. He will quickly see the need for additional skills on his part (i.e., how to use Interaction Analysis, how to conduct a Micro-teach, use feedback, write behavioral objectives, etc.). Many of these skills he can develop through self study using the suggested materials in the appendix and with materials he can purchase which are named in the appendix. Once the leader feels he has a good idea about his function in the program and has begun to develop the necessary skills to implement, he will want to study the separate document on leader training for a description of the roles he will be performing as the inservice leader.

Overview of Chapters II, III, IV

In the remainder of this document the reader will find the essence of the program. Chapter II is entitled "Getting Started" and is an attempt to suggest all the factors a prospective leader must address himself to before working with a group of teachers. Such items as entry strategy, working with administrators, communicating the program, selecting participants, time, cost, materials and equipment are covered in the chapter as well as some procedural suggestions.

Chapter III is the training design itself. The first part contains a description of the three phases of implementation. In the second part a detailed description of the MOREL Improvement Strategy is presented. Next the Improvement Strategy is presented in flow chart form. The last part of the chapter contains suggestions for Field Action Unit meetings.

In chapter IV the evalution procedure is presented, the hypotheses are stated and defined in operational terms, the instruments used are listed and described, and the results of field trials of the Program are presented.

The Appendices contain sample materials which the MOREL staff has found useful in implementing the program, a list of books and materials which can be purchased, data on equipment and suggestions for materials which the leader can develop for his own situation.

Chapter II

GETTING STARTED

Introduction

Prior to implementing the Teaching Behavior Improvement Program with a group of teachers, the inservice leader must give attention to a number of matters. Careful attention to these matters will not only help the leader get a better start, but will insure a smoother operation and greater success as implementation progresses. The points covered in this chapter relate to problems MOREL staff have encountered in implementing this program during the past two years. While the topics are not necessarily discrete, for purposes of this document they are treated separately. The inservice leader using this program will easily see the overlap of the topics. The major purpose of this chapter is to suggest procedures for getting a Field Action Unit started.

Entry

In order to implement the program it is necessary to have a group of teachers to work with and a place to work. Entry into a working situation may or may not be a problem depending on the way it is approached and the role orientation of the inservice leader. Whatever the role orientation--outsider, insider, principal, assistant principal, supervisor, department head, curriculum director, assistant superintendent or college professor--the approach is important. The insider faces different, but probably fewer, problems of entry into a particular building or with a group of teachers, whereas the outsider faces the additional problem of entry into the school district. Let us consider first the problems of the outsider.

Meeting with Chief Administrator*

It is absolutely essential that the inservice leader gain the approval of the chief administrative officer of the school system or one to whom decision-making power has been delegated. The first step is to explain thoroughly the nature of the Teaching Behavior Improvement Program to the chief administrator and his administrative staff including two or three principals in whose buildings the program may be implemented. In many school districts it is wise, and in some necessary, to include a representative of the teachers' association the teachers' union or both at the initial explanatory meeting. The leader must be well informed about the program and be able to discuss each step in the strategy from the viewpoints of theory and application. It is important that the audience understand the program as an improvement process rather than a group of isolated techniques. The leader may wish to use video tape equipment or present some of the program techniques in detail at this meeting. Interaction analysis is an excellent technique for use in the presentation because it (1) is easily communicated, (2) relates to a number of steps in the improvement process, (3) has a great deal of face validity, and (4) focuses attention on teaching behavior.

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*See Appendix for a suggested agenda for this meeting

The leader also must be prepared to answer questions relating to the mechanics of the program. Questions on equipment and materials, time, cost and space are often asked at this stage of implementation. In another part of this chapter data are given on those factors. The inservice leader must sort out his own requirements in relation to the degree of depth he is planning in the program.

The real task of the inservice leader in the initial meeting is to gain a commitment from administrative officers to conduct the program in their school district. If such a commitment is realized, the presence of principals at the initial meeting becomes more important because the leader may be able to avoid going through his presentation again with a group of principals. When approval is gained, the decision to which school the program is taken is probably best made by the group of administrators and others present. Assuming positive acceptance by this group and at least one principal desiring the program in his school, the next step is securing participants within a particular building.

Meeting with Principals*

Following approval from central administration, the next step is to secure program participants. There are a number of procedures one might follow in accomplishing this task. The chief administrative officer and his aides may choose to select a building for the program. If so, the task becomes one of securing participants within a chosen building and the leader's process is shortened by one step. If, however, the administration chooses to locate the program in a building where the most interest is shown, the leader must gear up for additional presentations, perhaps as many as one in each school building in the district. What are some procedures he might follow given the latter case? If the interest as a criterion is based on the interest of principals, the strategy is different than if the criterion is teacher interest. Supposing principals' interest is the primary concern at this point, what is a useful strategy?

Very likely it will be necessary to have a meeting of all the principals and their assistants and preferably one or two teachers from each unit unless the size of the district prohibits such a meeting. The meeting with a group of principals can be conducted in much the same manner as the one with central office administrators. Because principals are generally closer to the instructional program than central office administrators, the leader may choose to go into more detail about the improvement strategy with them. It is important that principals view the program as a teacher self-directed or self-analysis program rather than a means of administrative evaluation of teachers. The latter viewpoint on the part of administrators will greatly increase the problems of the leader. If such a problem exists, it must be solved prior to beginning work with a group of teachers. It is important that the leader be able honestly to communicate to teachers that they are not being evaluated by their principal on the basis of the Teaching Behavior Improvement Program.

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*See Appendix for a suggested agenda for this meeting

Communicating to Teachers*

The next step after principal approval is to communicate the nature of the program to the staff in the building. If the principal is excited about the program and if he involved some of his teachers in the principals' meeting, the task is much easier. If the principal did not choose to involve some teachers at the initial meeting, the program may be viewed by some teachers as something being forced on them. The leader may choose to meet with a staff in the absence of the principal, but with his knowledge and approval, to indicate that the decision to accept or reject is with the staff. It is better, however, if the climate is such that teachers can question, criticize and discuss the program thoroughly in the presence of the building administrator because such a climate will help to assure success at the program progresses.

Whatever the case, the leader's task becomes one of communicating the program to a group of teachers well enough for them to accept or reject the opportunity to participate. Because this program is highly personal, because the subject material is the teachers' classroom instructional behavior, the leader must be quite clear about the nature of the program. If the leader lures participants into the program on the basis of a distorted concept of the program he will probably face serious difficulties later. Teachers must view the program as a process through which they can learn to (1) identify teaching problems, (2) analyze those problems, (3) design an improvement strategy, (4) practice new behaviors necessary to use the strategy, (5) try those behaviors in the classroom, (6) evaluate the success, and (7) decide on next steps as a result of the evaluation. The leader probably should first focus on the steps in the process (found in chapter III of this document).

Following a clear understanding of the process the leader should explain the techniques used at each step in the process. Again he may wish to focus in some depth on one or two of the techniques such as interaction analysis or behavioral objectives and explain their use in the process. In a short time the leader can demonstrate the power of either of these techniques to a group of teachers. The leader should strive to make his presentation as relevant to real classroom teaching problems as possible, and he should also involve some of the staff in the presentation. The leader should be candid in discussing the time and effort needed from teachers in order to make the program successful. Indicating knowledge and skills teachers will have at the completion of the program should help to create interest. Allowing plenty of time for questions will not only help create a climate of openness about the program, but also provide opportunities to clarify misconceptions, gain greater understanding, and generate additional interest in the program. The leader probably should not seek a decision from teachers at this time but leave them with the understanding that he is available for further consultation and that they should indicate their interest to him or to the building administrator.

Some Factors in Selecting Participants for a Field Action Unit

Volunteers and Non-Volunteers

Assuming that the leader's communication to teachers has been effective, more will volunteer for the program than the leader can effectively manage and it is also possible that the building administrator will seek to have some persons who are not really volunteers involved. It has been the experience of the

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*See Appendix for a suggested agenda for this meeting

MOREL staff that volunteers are more desirable for faster progress. However, it may mean that the leader needs to work with them in a different manner. If a person enters the program on the basis of someone suggesting that he needs such an experience, the leader will be in a position of having to reverse a negative set. The working group should be made up mainly of volunteers; in this way one or two semi-volunteers probably will not hinder the progress of the group. The important factor is the manner in which the semi-volunteers are secured. A positive approach should be taken rather than a negative one. In other words, one should indicate to semi-volunteers the ways that teachers can improve their day-to-day instruction through participation in this program.

Subject Matter Homogeneity

MOREL staff members have worked with groups made up of teachers with the same subject matter orientation and groups in which each teacher taught a different subject. MOREL has found little difference in the success of groups in relation to subject matter orientation with minor exceptions. A group made up of all English teachers or all science teachers for example, has the advantage of working with the same general subject matter background and this, at times, enhances communication within the group. However, the real purpose of the group is to focus on classroom teaching behavior and instructional strategies most of which are applicable across subjects. A mixed group also enhances communication across subject matter lines. Teachers in one subject find that they can learn from teachers in other subjects if the focus is on teaching strategies rather than subject matter problems. Problems do exist, however, when a group has physical education, music and industrial arts teachers in it. These problems exist mainly because much of the work of these teachers is done more on a non-verbal or individual basis and the improvement techniques are not as applicable to those situations. A leader starting a Field Action Unit probably will want to begin with a group of persons whose subject orientations are English, science, mathematics or social studies. After having worked with such a group, the leader will be able to make application to a group of a different make-up.

Grade Level Homogeneity

Should the program participants be from the same grade level? Again this question is best answered by deciding what one desires to accomplish through the program.

The primary focus of the program is the improvement of classroom teaching behavior--a focus which certainly cuts across grade levels. If there are additional goals which might be realized through having the group consist of teachers from the same grade level, such a structure may be more productive. It seems wise not to mix teachers in a group across more than three grade levels. The program has not been tested in the lower elementary grades K-3. Although data are not available to support such a position, MOREL staff members feel the program may be as applicable, with minor modifications, to the lower elementary grades as to other grade levels.

Organizing a Field Action Unit

In this section the mechanics of getting a Field Action Unit started are covered under the topics (1) time involved, (2) size of group, (3) mode of operation, (4) individual and group concerns, (5) cost, (6) equipment, and (7) materials.

Time

Experience of the MOREL staff has shown that each teacher should work through the improvement strategy approximately three times. The first time the leader is very active in working with teachers, the second time he is less active, and the third time he assists only when the teacher is experiencing some difficult problem. It takes approximately three months to work a group of five teachers through the strategy three times. This time allotment is based on working with each teacher three to four hours per week. If the leader desires to conduct, pre, post and interim evaluative testing, time must be added to the three-month period. The three-month figure is, of course, not a hard and fast time allotment. It depends on the amount of time the leader is able to spend with the group and how fast the group and individuals are able and willing to progress.

Another dimension of time is the pace the leader sets. If he moves too rapidly, the participants will probably become irritated as well as fail to assimilate the program fully. On the other hand, if he moves too slowly, the possibility of losing some participants through boredom or inaction is increased. It is necessary that the leader interpret feedback regarding pace properly and that he take appropriate action to increase or decrease the pace for the group and/or individuals.

Size of Group

Size is related to other factors such as time, cost, and materials needed. The MOREL staff has found that the most workable group is four to six persons. A group of less than four makes it difficult for group processes to take hold while a larger group may create problems related to time and focusing. An even number makes pairing of the participants easier although one pair and one trio will generally serve the purposes of partial group activities. Group size depends to some extent on the skill and mode of operation of the Field Action Unit leader. Some leaders are able to work effectively with a group larger than six while others cannot. Some can also work in a non-directive manner with a larger group while others feel the need to be more directive as group size increases. Each leader must, through careful assessment of his abilities and the feedback he receives, seek his own mode of operation in relation to group size.

Mode of Operation

Shall the Field Action Unit leader operate in a directive or non-directive manner? This is a question which always must be confronted by the leader in any type of group. Each leader must decide for himself, based on accurate assessment of his own abilities and feedback from the group, how he can operate with greater effectiveness. At the outset, it is important that the leader be directive to the extent that the teachers are informed about what is expected of them.

He must also pay careful attention to the members of the group because some will be able to profit more from a directive approach than others. The program can be individualized in many places but to accomplish this the leader must know how each member learns best. Probably the most effective approach MOREL staff members have used could be labeled a "directed self-discovery method." This method requires that the leader have a definite plan which creates the opportunity to ask appropriate questions and make appropriate comments, but he does not act as an answering service. He will often turn participants' questions into questions which they can answer for themselves or provide them with additional data needed to answer the question. There are, however, times when a direct answer to a direct question is the only appropriate response. Sometimes such a response is necessary for the security of both the leader and the participants. In using a directed self-discovery approach the leader must be careful not to manipulate the participants through a process that they do not understand. He must pay careful attention to their reactions and ask questions which provide him with feedback on the appropriateness of his procedures.

Group and Individual Activities

This program is designed in such a way that some activities can be implemented with the total group while others are better accomplished on an individual basis. It is necessary that each person thoroughly understand the total improvement process rather than just individual portions or pieces. This can be accomplished in the total group by discussing the process as it applies to actual instructional behavior. A sample of classroom teaching behavior on a video tape or an audio tape will serve as a framework for analyzing teaching using the MOREL improvement process. In this manner members of the group can help each other, raise appropriate questions, and generally provide support for operating as a group.

When the leader is confident that each member of the group has an understanding of the improvement process, he can then begin to work each group member through it. His first step is collecting data on a segment of each teacher's classroom behavior and learning from the teacher the goals for that session. This step is explained thoroughly in chapter III. Because the program at this point becomes very personal and because it can become threatening, the leader must follow the first few steps in the design, and perhaps all the way through the design the first time, on an individual basis.

If the leader is effectively monitoring the behavior of each participant and if he is assessing and utilizing feedback from participants, he will be able to determine the point at which participants are able to share their own teaching behavior with the total group or with one or two other group members. When the leadership functions are primarily instructional, i.e., teaching Interaction Analysis or how to write behavioral objectives, the leader should work with the total group. However, when the functions are analytical, the leader should use an individual approach. One of the leader's goals should be to get the individual group members discussing their teaching behavior with the total group. Although he can encourage the process, the leader will need to be patient and allow it to grow out of the group.

Cost

Basically there are three types of costs involved in implementing the Teaching Behavior Improvement Program. These costs are: personnel, equipment, and expendable materials.

Personnel costs are those costs which accrue as a result of the time the teachers and leader spend working in the program. Because salary rates are so variable, it is difficult to estimate exact personnel costs. It is likely that the inservice leader will spend one-third to one-half time implementing the program with a group of four to six teachers. If the design is to be completed in a period of approximately three months, each teacher will need to be involved three to four hours per week.

Group meetings and, at times, individual sessions are held at the end of the school day. In most cases teachers will need to be paid for after school time. The probable maximum of after-school man hours is ten per week. However, the after-school time can be reduced in various ways. In many cases the leader can hold individual work sessions during teachers' planning periods or perhaps during the lunch period. We have found that teachers are not relunctant to use such time for participating in the program. A second alternative is to have the school district release participating teachers one or two hours early one day per week. A third possibility is to arrange schedules so that the four or five teachers involved have a common planning period, preferably the last period of the day. This arrangement is especially feasible if a Field Action Unit is made up of a teaching team. Another alternative is to arrange independent study or course credit for participating teachers with a local university or college. With a credit arrangement teachers are generally willing to participate in after-school programs without pay for their time.

Equipment constitutes the second major expense in implementing the program. Equipment expense, of course, depends on (1) whether the leader wants a minimum amount of equipment or the ideal amount and (2) the quality of equipment desired. Since equipment is covered in detail in the next section, the reader is referred to that section and to the Appendix for a listing of equipment and cost data.

A third cost category could be labeled expendable materials. Although these costs are minor compared to personnel and equipment costs, they must be considered when planning a budget for a Field Action Unit. A list of the expendable materials and approximate costs appears in the next section.

Equipment

As indicated earlier there is an ideal amount of equipment and a minimum amount. Below is a list of the equipment that is considered ideal. The leader can decide which items he needs and which he can omit.

1. video tape recorder
2. video camera and lens
3. five-inch TV monitor
4. large TV monitor
5. microphone and stand
6. tripod for camera and small monitor
7. cart for video tape recorder
8. video tapes
9. audio tape recorder and tapes
10. overhead projector
11. movie projector
12. filmstrip projector
13. duplicating machine

14. chalkboard or easel
15. storage cabinet
16. filing cabinet
17. desk and chair

In purchasing video and audio tape equipment for this program the buyer should take a few suggestions into consideration. Covering first audio equipment, it seems wise to choose recorders on the basis of:

1. Portability--the tape recorder must be moved in and out of the classroom for data collection activities and used to record group meetings, etc.
2. Cost--because it is desirable to have more than one audio unit, cost must be considered.
3. Durability--is the recorder durable? Can it be kept out of the repair shop?
4. Power--will the recorder operate on both AC and battery power or only one?
5. Efficiency--will the recorder efficiently pick up classroom verbal discussion?
6. Accessories--is the recorder a bare recorder or can accessories be attached that will assist in getting better recordings?

While a five-or seven-inch reel recorder satisfies most of the above conditions, many such recorders do not satisfy the conditions of cost, portability, and flexibility with regard to power supply. There are many reasonably priced cassette recorders on the market that will meet all the above criteria.

In buying video equipment, the following should be considered:

1. Durability--The breakdown percentage of video tape recorders is much higher than audio recorders. The buyer should investigate carefully the approximate hours of operation he can expect without a breakdown. It is wise to check with owners of various types of machines to get an idea of the most durable ones.

2. Availability of repair service--How accessible is a repair shop, either the jobber of machines or an independent repairman? What is the time delay involved in repairs? If one is buying more than one unit, it is especially wise to look into a repair service contract. Many companies will agree to replace your unit with one of their own while repairs are being made which is a type of service contract that ought to be considered minimum.

3. Size and portability--These factors seem to go together in the case of video tape recorders. Even though one can purchase a cart with wheels for transporting the unit, there are times when it must be carried, VTR units range upwards in weight from about 35 pounds.

4. Cost--Video tape recorders and the necessary accessories vary a great deal in cost. One can purchase a 1/2-inch recorder, camera, monitor, tripod, etc., for about a $2,200 investment. On the other hand, one can easily pay $6,000 for a one-inch unit and the other equipment.

5. Efficiency--The buyer must decide what the basic use of the equipment is to be. If it is to be used primarily for taping segments of classroom teaching or practice exercises for feedback purposes, the 1/2-inch recorders will serve the needs. If, however, he wished to produce demonstration tapes for uses with persons who did not observe the taped sessions, he may want to go to a more expensive unit in an effort to produce better quality tapes.

6. Compatibility--If the owner plans to view tapes made on other units he must determine if his unit will show the tape. Another facet of compatibility relates to the interchanging of various accessories, some cameras will work with more than one recorder and monitor, etc. If one buys a package from a company there is no problem. However, if various items are bought from various companies, they may not be compatible.

Materials

Below is a list of the source materials for use with the Teaching Behavior Improvement Program. This list is basic; additional source materials are listed in the Appendix under the sections entitled Interaction Analysis, Behavioral Objectives, Micro-Teaching, Student Feedback and Teaching Skills.

1. The Role of the Teacher in the Classroom
   Edmond J. Amidon and Ned A. Flanders
   Association for Productive Teaching, Inc.
   1040 Plymouth Building
   Minneapolis, Minnesota 55402 Price: $1.50

2. Preparing Instructional Objectives
   Robert Mager
   Fearon Publishers
   2165 Park Blvd.
   Palo Alto, California 94306 Price: $1.75

3. Problem Solving to Improve Classroom Learning
   Richard Schmuck, Mark Chesler and Ronald Lippitt
   Science Research Associates, Inc.
   259 E. Erie Street
   Chicago, Illinois 60611 Price: $2.10

4. Role-Playing Methods in the Classroom
   Mark Chesler and Robert Fox
   Science Research Associates, Inc.
   259 E. Erie Street
   Chicago, Illinois 60611 Price: $2.10

5. Diagnosing Classroom Learning Environments
   Robert Fox, Margaret Barron Luszki
   Science Research Associates, Inc.
   259 E. Erie Street
   Chicago, Illinois 60611 Price: $2.30

6. Self-Renewal: The Individual and the Innovative Society
   John Gardner
   Harper Colophon Books
   Harper and Row, Publishers, Inc.
   49 E. 33rd Street
   New York, New York Price: $1.45

Chapter III

THE CURRICULUM

Introduction

This chapter presents the curriculum for the teacher training component of the Teaching Behavior Improvement Program and is divided into four parts: a description of the three phases of implementation; the steps in the improvement strategy in sufficient detail for the inservice leader to understand his function in relation to each step in the program; the purpose and description of Field Action Unit (FAU) meetings; and the process and tasks of the inservice leader summarized in the flow chart form.

The Phases

One of the major functions of the inservice leader using the Teaching Behavior Improvement Program is to help teachers become more self-directive with regard to their own improvement. It is difficult, if not impossible, to accomplish such a task if the leader assumes total responsibility for teacher's improvement. In order to elicit more self-directiveness from the teacher, two factors have been built into the program. First, the teachers learn the improvement strategy and the use of the tools well enough to make application during and after the intervention of the leader. Second, the leader implements the program in three phases. An explanation of those phases should reveal the progress toward self-direction in relation to progress over time.

Phase I

In the next section of this chapter the steps in the strategy are carefully described as they are implemented in Phase I. The section containing the flow chart also relates to Phase I. The basic distinction among the three phases is not related to the activities, but to the degree of responsibility the leader takes in implementing the program. In Phase I the leader carefully works each teacher individually through the improvement strategy with the goal of each teacher clearly understanding the steps and how they fit into the whole. He must assume the leadership for movement by providing support and feedback, creating conflict, suggesting alternatives, remaining flexible and focusing on the teacher's classroom behavior. It is imperative that teachers see the relevancy of each step to their own teaching behavior. Such insight is gained through using a sample of the teacher's classroom behavior as the subject matter for movement through the strategy. When this is coupled with a clear explanation of the meaning and application of each step, the teacher should not only see the value and relevancy, but should also understand the strategy.

Phase II

If the leader is concerned that the teachers with whom he is working become more self-directive, he will want to reduce the amount of responsibility he takes for teachers working through the total strategy the second time. The leader, if he has observed well and has documented carefully, will be in a position to decide at what points each teacher will need help and/or encouragement. By isolating and providing assistance at the points of difficulty, the leader can provide appropriate support and direction. It is likely that teachers will seek more help on the data collection, data analysis, and evaluation steps than others.

The nature of the Field Action Unit meetings should also change during Phase II. During the time the leader is working through Phase I, he is also conducting FAU meetings for the purpose of teaching the use of the tools in the program. (See the section entitled FAU Meetings in this chapter). During the second and third phases, the nature of the FAU meetings should focus more on teaching behavior and group analysis of teaching behavior. By this time it is likely that most of the members of the group will be open to discussing and analyzing their own behavior in the group situation.

When the FAU meetings are focused on group analysis of teaching behavior, teachers will begin to help each other define problems and develop improvement strategies. The chances are good that one of the teachers in the group will volunteer his problems for analysis by the group. If this doesn't happen, the leader may choose to ask one of the group members to offer data for analysis. It is imperative that teachers thoroughly understand the improvement strategy and the use of the tools before entering into group analysis of behavior. Such knowledge is necessary in order for the group members to have the framework for solving problems.

Phase III

By this time each group member should have worked through the improvement strategy twice with varying degrees of help. In Phase III the teachers work through the strategy with almost no help. The leader may choose to have each person work alone or he may choose to suggest that teachers work in pairs. (Pairs could also be used during Phase II.) While individual or paired work is progressing, the FAU meetings will continue. Although the emphasis in the FAU meetings is much like the meetings in Phase II, the amount of input from the leader should decrease. The group members should take the initiative for movement. Also during Phase III the group might make individual and group plans for continuing the program after the leader departs and discuss how the group might spread the program to other faculty members and other schools. The group may wish to include some administrators in such discussions or make definite plans for future discussions with administrators.

By way of summary, the three phases of the program are as follows:

1. In phase one, the leader assumes full responsibility and provides direction. The FAU meetings are for the purpose of teaching the use of the tools used in the improved strategy.

2. In phase two the leader assumes less responsibility and provides less direction as indicated by the teachers' gathering and analyzing their own data. The FAU meetings focus primarily on group analysis of teaching behavior.

3. In phase three, the teachers assume responsibility and provide their own direction. The FAU meetings continue to focus on group analysis. Added at this point are individual and group plans for conducting the program after the leader departs as well as how the group might spread the program to other faculty members and other schools.

Suggested Time Line Chart for
Three Phases of the TBIP

Time	Activity	Mode
Two Weeks	Entry Procedures Meetings with: Chief administrators of the school system Principals Building teachers	The leader meets with individuals and in groups
Two Weeks	PHASE I Initial orientation meetings with FAU teachers Seek goal statements Collect and order data on each teacher Hold FAU meetings	Individual meetings with teachers
One Week	Analyze and interpret data: (Starting at this point the leader should use a minimum of one FAU meeting a week for the purpose of teaching Interaction Analysis and behavioral objectives. By completion of phase one, the teachers should be able to use IA and behavioral objectives on their own.)	Individual meetings FAU meetings

Time	Activity	Mode
One Week	Classroom application of behavior	Individual meeting with each teacher.
One Week	Evaluate change and plan next steps	Individual meeting with teachers. FAU meetings.
Three Weeks	PHASE II Teachers working in groups of two, go through the inquiry process. The leader assists only when needed. Teachers use the techniques they have learned and continue to learn the techniques as the need arises. By the end of Phase II the teachers should be competent in the use of all the techniques.	Meetings with groups of two. FAU meetings.
Two Weeks	PHASE III Teachers again go through the process in groups of two and this time receive little or no help from the FAU leader.	Leader becomes observer.

The Improvement Strategy

Phase I

The MOREL strategy for helping teachers learn to improve their classroom teaching behavior consists of seven steps which are not mutually exclusive but which can be described in terms of distinct operations. In this section the purpose is to describe those steps in such a way that the user will clearly understand each and their relationship to the whole. Following this section the steps and the accompanying tools are presented in a flow chart.

Seek Goal Statements

This step does not include an extensive determination of the goals of each teacher in the FAU. It does include the writing of two or three goal statements on what he hopes to accomplish in the teaching session on which the leader is going to collect data in fulfilling Step II. Completing this step makes it possible for the leader to immediately personalize the program because the goal statements are the teacher's own. These goal statements also form a base against which the data are analyzed in Step III. Further, such goal statements often provide data to the leader on the teacher's ability to state goals in measurable terms. Later when teachers are working on writing goals in terms of outcome behaviors, these initial goals can form a beginning point of instruction. The focus on goals at this point is on their measurability, and the basic purpose of dealing with them here is to lead to the next step in the strategy. However, the inservice leader should help teachers focus their attention on two other aspects of goal setting--relevancy and source. Many goals are of questionable worth and the source is the teacher rather than some combination of teacher, child, community etc. During the "analyze and interpret data" step, the leader has an opportunity to raise questions dealing with relevancy and source of goals.

Collect and Order Data

The purpose of this step is to collect data from live teaching sessions on each teacher in the Field Action Unit and to order or organize the data in an interpretable fashion for use in Step III. The data collected at this point are not intended to be representative of the total behavior of the teacher, but are representative of one teaching session and serve as a beginning point for studying the live teaching behavior of each teacher in the group. The leader may choose to collect one hour of data in one session or he may choose to observe two half-hour sessions. Whatever the case, the only requirement for the teaching session is that there be some type of verbal interaction during much of the session.

It is suggested that the leader collect one hour of interaction analysis data and one hour of either audio or video tape data. Both can be secured during the same time block. In an additional fifteen minutes the leader can administer the "Student-Opinion Questionnarie" to one of the teacher's classes. Other data collection modes are conversations with the teacher and naturalistic observation. These data should provide sufficient information for the leader to work with in the analysis session.

Prior to Step III, the leader must order the data in a useable form. The interaction analysis data must be transferred to a matrix and interpretations prepared. (Instructions for building matrices and interpreting data are found in the Appendix under Interaction Analysis.) The results from the student feedback instrument must be tallied and summarized for each teacher. Instructions are also in the Appendix. The leader will also want to view or listen to the taped data before going over it with the teacher in order to begin understanding the teacher's behavior. The leader should allow three to four hours for Step II with each teacher in his group.

Analyze and Interpret Data

The inservice leader has already done a certain amount of data analysis through the previous step because it is almost impossible to transfer interaction analysis data to a matrix and summarize student feedback data without a certain amount of analysis occurring simultaneously. The primary function in this step, for the leader, is to study and analyze all of the data. Rather than analyze and interpret on the basis of student feedback or interaction analysis alone, he should determine what can be learned about a teacher's behavior from combining the data. Does one type of data support another? Is a particular pattern of teaching behavior emerging? Is there a commonality of teaching problems present in the various types of data? What relationship does the teacher's behavior have to the goals stated in Step I? These and others are questions the leader might ask himself as he analyzes the data.

The leader would be unwise to develop a total analysis of the data prior to a feedback session with the teacher. If the leader has developed a total analysis and spends the feedback session interpreting the data to the teacher, it is unlikely that the teacher will learn much about a process of data analysis. If, however, the leader has ordered the data and looked at it in terms of broad categories, such as the above questions, he is then in a position to describe how he arrived at that point and offer some general interpretations of the data. Following the general comments, he can then procede with the teacher to conduct further analysis. In this way the teacher becomes a learner in the process.

The desired outcome of Step III is to isolate three or four problems the teacher is having in classroom interaction and instruction. Developing solutions for solving these problems is the beginning point for the teacher to experiment with his own behavior — a topic presented in Step IV. At this point the leader must be careful in pointing out the existence of the problems. Unless the teacher sees the problem for himself, progress is likely to be much slower. The leader, however, by asking appropriate questions, can help the teacher recognize the existence of problems. It is imperative that the leader keep in mind that the subject matter of this session relates to the livelihood and value system of a human being who regards highly his own knowledge and experience in teaching. Therefore, it seems wise to avoid questions and statements such as: "Why didn't you?" "You should have..." "There is a better way." In other words value-laden terminology might be replaced with: "What do you think would have happended if...? "What was the observable effect on Johnny?" "Can you think of another approach to that idea?" "What is your perception of that situation?"

In this step the teacher will often take the initiative to point out his own problems even though he may not identify a particular behavior as a problem.

When that happens, the leader's task in Step IV is much easier. When it does not happen, the leader's task is to find a question or statement that creates sufficient conflict that the teacher will desire to close the gap between what is happening and what he thinks is happening. The leader must also be prepared to provide support to the teacher when he feels the conflict may be too strong or inhibiting to progress. However, he should not move to the point of removing the conflict because this may also remove the desire to change. Because Step III is an extremely crucial one, the leader should plan for two hours with each teacher.

Select Behavior to be Changed and Plan an Improvement Strategy

If Step III was implemented successfully (i.e., there were three or four instructional problems isolated),the next step requires a focus on one of those problems. When the teacher has identified the instructional behavior problems, the task becomes one of deciding which problem seems to have the greatest priority and developing a plan for solving it. On the other hand, suppose the teacher has not identified nor accepted behaviors discussed in Step III as problems to be solved. What procedures are then useful? (1) The leader might recall some of the rationalizations the teacher made during the analysis session and attempt to deal with those. (2) The leader may choose to wait a few days during which time, if some conflict were created, the teacher will be doing some serious thinking about his teaching behavior. He may view the data in a different perspective with the passage of time. (3) The data can be re-analyzed with a different approach. (4) The leader can collect additional data which may support or reject some assumptions made earlier.

When the teacher decides on a behavior to be changed, the leader must assist the teacher in analyzing the nature of the behavior in terms of its manifestation in the classroom and the consequences of such behavior. He must also move toward defining the behavior in terms of a problem to be solved through practicing and evaluating new behavior or behaviors.

In planning the specific improvement strategy, the leader can begin with identification and discussion of new behaviors the learning of which might solve the identified problem. To assist in gaining understanding of new behaviors and their application to teaching, the leader and teacher may role play some new behaviors. These new behaviors are referred to as teaching skills. (A list and explanation of some teaching skills are found in the Appendix). While the list is not exhaustive, it does contain many useful skills and will give the leader insight into the nature of teaching skills and can lead to development of other skills. The next activity is to plan a session in which the new skill can be practiced. At this time micro-teaching comes into the improvement strategy. (See Appendix for an explanation of micro-teaching). The leader's role is to help the teacher plan a scaled-down teaching session in which a new skill will be tried. It is necessary that goals be written in terms of outcome behavior desired in students and the behavior desired by the teacher in the practice session. These goals provide a point against which to analyze following the session. A decision must also be made on the content of the micro-teach; however, the content at this point is secondary because the focus is on the skill the teacher is trying.

Practice Behavior and Analyze Practice Session

The leader should make all necessary arrangements for conducting the micro-teach session. These include securing four or five students, a room, and setting up any audio and/or video equipment.

The teacher then conducts the micro-teach and the leader stops the session after five or six minutes. The exact time is not as important as the manifestation of the desired behavior from the teacher and students. Such behavior may show in five minutes or it may take longer. If it appears that the desired behavior is not going to occur the leader probably should not let the micro-teach continue too long--at least not to the point where the teacher becomes frustrated.

Following the micro-teach the students can be given a short reaction questionnaire to assess their perception of the presence of the desired behavior from the teacher. Using the taped data, the leader then critiques the session. The reader is referred to the appendix for a detailed explanation of a micro-teach critique. The leader's behavior in the first critique session should be more supportive than analytical. Out of the critique should grow plans for a re-teach using the same skill. In the re-teach the teacher is likely to be more sophisticated and comfortable in experimenting with a new behavior, and the critique can be more analytical than the first one.

The number of micro-teach sessions needed for the teacher to become proficient with a skill varies with the skill and the teacher, although two or three are usually sufficient. When the teacher seems comfortable with his proficiency in using the skill he is encouraged to try its use in the classroom.

Trial in the Classroom

The real test of a teacher's use of a new behavior lies in his ability to use it in a full and live classroom situation. The leader should arrange a time with the teacher for the skill to be tried in the classroom. At this point the leader will want to decide on the data he is going to collect from the trial. It is suggested that he use Interaction Analysis, video or audio tape, and a simple student feedback instrument. The procedure following this session is much like Step III with the exception that the behavior at this point is being compared with: (1) the original data collected; (2) findings of the analysis session; and (3) observations from the micro-teaching sessions.

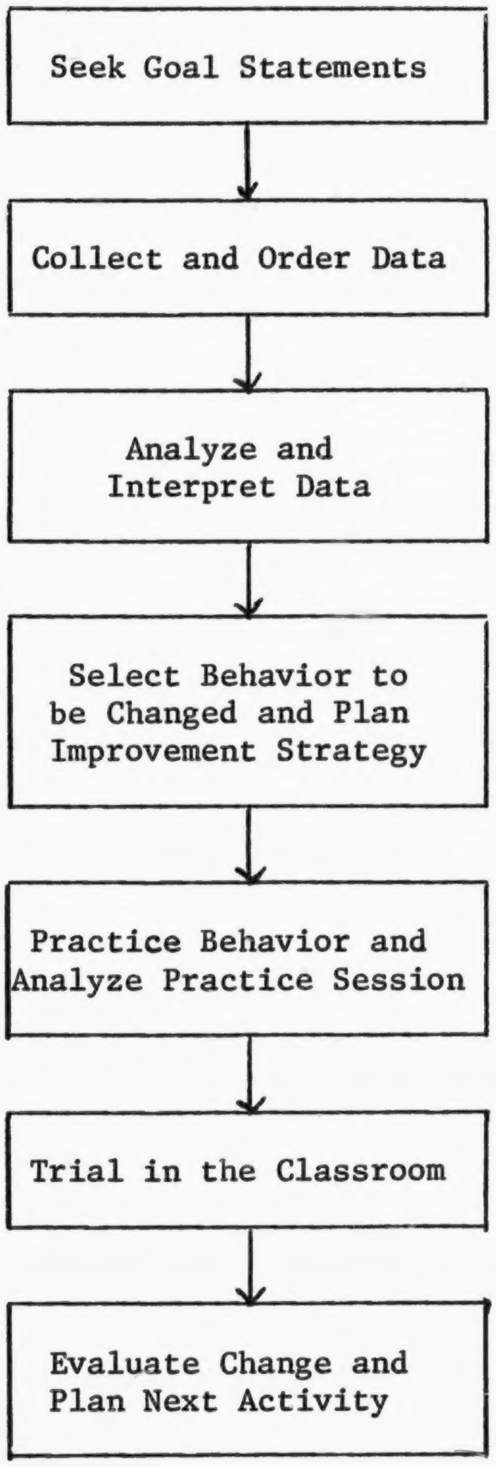
Evaluate Change and Plan Next Activity

Did the new behavior have a constructive impact on the students? If so, why? How? By thorough assessment of the Interaction Analysis data, taped data, student feedback data and discussions with the teacher, these and other appropriate questions can be answered. Depending on the teacher's evaluation at this point a number of alternatives are available. First, the teacher might choose to return to another problem identified in the first analysis session and work through the process with a different skill. Second, he may choose to collect new data. Third, he may choose to try a different mode of practicing and trying the same behavior under different conditions.

The leader also has a decision to make at this point. Whatever the teacher chooses to do, the leader must decide whether the teacher has learned the process well enough to begin phase II or if he should work through the process again with considerable guidance.

What has been described on the previous pages is the implementation of the improvement strategy with each individual teacher in the Field Action Unit. Because the leader is working with a group of teachers, he must have some group activities going on simultaneously with the individual activity. In a later section suggestions are made for those group meetings.

THE IMPROVEMENT STRATEGY



	THE PROCESS	THE TOOLS
Step I.	Seek Goal Statements	
Step II.	Collect and Order Data	Interaction Analysis Video Tape Student Feedback Audio Tape Naturalistic Observation
Step III.	Analyze and Interpret Data	Interaction Analysis Video Tape Student Feedback Audio Tape Naturalistic Observation
Step IV.	Select Behavior to be Changed and Plan Improvement Strategy	Technical Teaching Skills Video Tape Audio Tape
Step V.	Practice Behavior and Analyze Practice Session	Micro-Teach Role Play Behavioral Objectives Classroom Practice Student Feedback
Step VI.	Trial in the Classroom	Interaction Analysis Video Tape Student Feedback Audio Tape Naturalistic Observation
Step VII.	Evaluate Change and Plan Next Activity	I.A. Student Feedback Audio Tape Video Tape Naturalistic Observation

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Diagram of Improvement Strategy - Phase I

Steps	Procedures	Tools Used	Materials & Equipment	Documentation
I. Seek Goal statements	Meet with each teacher for approximately fifteen minutes to: 1. Arrange a time for collecting the data needed in Step II. 2. Get on paper two or three goal statements the teacher has for his teaching during the data collection session.	None	Data Collection Schedule Sheet	1. File teacher goal 2. Other comments should be recorded in SectionB of the Documentation Manual.
II. Collect and Order Data	Collect the following data from classroom teaching on each teacher in the Field Action Unit. 1. Interaction Analysis coding on two twenty-to thirty-minute teaching sessions having a high degree of verbal interaction. 2. Audio or video tape on the coded sessions. 3. Student opinions by administration of the Western Michigan University Student Opinion Questionnaire. This takes approximately fifteen minutes. Order the data gathered by: 1. Transferring the coded I.A. sequence into an I.A. matrix 2. Summarize the I.A. data in general terms such as percentage of teacher talk, student talk, time used in each category, the general response pattern of the teacher, what categories followed what categories etc. 3. Summarize the student opinions on the summary graph sheet. 4. Listen to or view the taped data, summarize in general terms and select two or three short episodes to illustrate behavior patterns. 5. Study all data for commonalities, cross data support, emergence of a teaching pattern and relationship of the teacher's behavior to the goals stated in Step I. 6. Decide on a strategy for sharing the data with the teacher in Step III. (Time required for ordering data - approximately 3 hours per teacher)	1. Interaction Analysis 2. Student Feedback 3. Audio or video tape	1. I.A. coding sheets 2. I.A. matrix sheets 3. Audio or video recorder 4. Student Opinion Questionnaire 5. Student Feedback Summary graph	1. File a copy of each teacher's matrix and a copy of the summary of student feedback. 2. Comments should be recorded in Section B of the Documentation Manual.

Steps	Procedures	Tools Used	Materials & Equipment	Documentation
III. Analyze and Interpret Data	Meet individually with each teacher for further analysis and interpretation of the data. The activities in this step include: 1. Playing the audio or video tape and analyzing the teacher's behavior through discussion. 2. Interpreting and analyzing further the Interaction Analysis matrix. 3. Analyzing and interpreting the opinions of the students. 4. Examining the teacher's behavior in relation to the goals stated in Step I. 5. Cross compare all data collected. 6. Assisting the teacher to reach a decision on some general problem areas in his own teaching. Summarize in writing. (Time required for Step III - approximately 2 hours per teacher)	1. Interaction Analysis 2. Student Feedback 3. Audio or video tape	1. I.A. coded sequence 2. I.A. matrix 3. Summarized student feedback data 4. Audio or video tape 5. Teacher's written goal statement	1. Comments and observations should be recorded in Section B of the Documentation Manual.
IV. Select Behavior to be Changed and Plan an Improvement Strategy	Meet individually with each teacher for the purpose of determining which of the teaching behaviors identified in Step III the teacher wishes to change and to plan an improvement strategy for such change. 1. Review the three or four teaching behavior problems identified in Step III using audio or video tape, interaction analysis or other data in the review. 2. Help the teacher to understand the consequences of the identified teaching behaviors by discussing the effect on students. 3. Seek from the teacher a decision on which behavior has highlighted priority for change. 4. Discuss the nature of this behavior and help the teacher define it as problem to be solved. 5. Discuss new or different teaching behaviors which, if learned, will help solve the problem. 6. Decide on a new behavior or teaching skill to be practiced and discuss or role play the new behavior so that it is clearly understood. 7. Plan the micro-teach or practice session. This should include the skill tobe practiced, the behavioral objectives for teacher and students, student feedback to be gathered and content to be used. 8. Plan for gathering data on the teacher's use of the skill prior to practice in the micro-teach. (Time required for Step IV - approximately 1½-2 hours per teacher)	1. Audio or video tape 2. Interaction Analysis 3. Micro-Teaching 4. Behavioral Objectives 5. Teaching Skills 6. Student Feedback	1. Audio or video recorder 2. I.A. matrix 3. Student feedback summary graph 4. Teaching Skills Manual 6. Planning and critiquing a micro-teach 7. Behavioral Objectives materials 8. Summarized record of problem areas	1. File skill practice sheet or micro-teaching planning and/or critiquing forms. 2. Comments and observations are recorded in Section A and B of the Documentation Manual.

Steps	Procedures	Tools Used	Materials & Equipment	Documentation
V. Practice Behavior and Analyze Practice Session	The leader's role is to assist the teacher in implementing Step V by: 1. Setting up any audio and/or video equipment to be used. 2. Arranging for the time, space and students. 3. Stopping the micro-teach when the desired behavior is manifest or when it seems that the behavior will not appear. 4. Critiquing the micro-teach. 5. Helping analyze the student feedback instrument given following the micro-teach. 6. Helping the teacher evaluate success of the micro-teach. 7. Discussing the plans for a re-teach. 8. Critiquing the re-teach. 9. Discussing plans for classroom trial of the new behaviors. 10. Planning a specific time for trying the skill in his class. (time required for Step V - approximately 1 1/2 hours per teacher)	1. Audio or video tape 2. Micro-Teaching 3. Student Feedback 4. Behavioral Objectives 5. Teaching Skills 6. Interaction Analysis if micro-teach is coded	1. Audio or video recorder 2. Short - two or three item student feedback instrument and analysis sheet 3. Teaching skills manual 4. Skill practice sheet 5. Any forms developed to assist with the critique 6. Planning and critiquing a micro-teach 7. I.A. coding and matrix forms if Interaction Analysis is used	1. Comments and observations are recorded in Sections A and B of the Documentation Manual. 2. File the skill practice sheets for the teach and re-teach, I.A. forms, student feedback instrument and results, and any other forms used.
VI. Trial in the Classroom	The leader's role is to assist in implementing Step VI. by: 1. Discussing the use of the practiced skill in the total classroom. 2. Deciding with the teacher the nature of the evaluation for determining success with the skill. 3. Deciding with the teacher the tools and instruments to be used in the evaluation. 4. Observe, for ten to fifteen minutes, the classroom trial. Use the same data-gathering procedure as in #8 of Step IV. (time required for Step VI - approximately 1 hour per teacher)	1. Audio or video tape 2. Interaction Analysis 3. Student Feedback 4. Behavioral Objectives 5. Teaching Skills	1. Audio or video recorder 2. I.A. coding and matrix forms 3. Class reaction forms 4. Behavioral Objective materials	1. Comments and observations are recorded in Sections A and B of the Docmentation Manual. 2. File coding forms and matrix and class reaction forms.

Steps	Procedures	Tools Used	Materials & Equipment	Documentation
VII. Evaluate Change and Plan Next Activity	The leader's role is to assist the teacher in implementing Step VII by: 1. Helping to analyze the data gathered in Step VI. 2. Discussing comparisons and contrasts in the data. 3. Helping evaluate the degree of success in Step VI by comparing data from this session with data from pre-session. 4. Helping the teacher reach a decision next activity based on the teachers' assessment of success. 5. Helping the teacher plan the next activity which could include additonal practice with the same skill, practice with a different skill, collecting additional data, evaluate the teachers' goals, a different mode of practice, a new classroom trial etc. (Time required for Step VII - approximately 1-1/2 hours per teacher)	1. Audio or video tape 2. Student Feedback 3. Interaction Analysis 4. Teaching Skills	1. Audio or video recorder 2. I.A. coding forms and matrix 3. class reaction forms 4. Teaching Skills Manual 5. Behavioral Objectives materials 6. Records from pre-session	1. Comments and observations are recorded in Section A and B of the Documentation Manual. 2. File I.A. coding forms, matrix, class reaction forms from both pre and post sessions.

Field Action Unit Meetings

The Field Action Unit (FAU) is the group of four to six teachers who are working in the Teaching Behavior Improvement Program. This group should meet regularly during program implementation. Depending on time and other factors the group may meet once or twice per week. It seems wise to meet more frequently early and late in the program and to reduce the number of group meetings during the time teachers are working through the improvement strategy. The FAU meetings serve a number of vital functions. Among these are: (1) the opportunity for teachers to learn to work together on professional improvement; (2) a situation for learning the specific tools (I.A., behavioral objectives, etc.) in the Program; and (3) framework for an on-going effort after the leader's intervention.

Some guidelines suggested for the subject matter of the FAU meetings:

1. The leader should keep in mind that this program is very personal and that discussion about an individual's teaching behavior should be kept individual early in the program. The meetings (2-3) prior to phase I should focus on teaching behavior generally, the improvement strategy, the improvement tools, plans for the next few weeks, and on making teachers comfortable in working on their own improvement.

2. During phase I the FAU meetings should focus on learning to use the tools. By this time teachers will have a general understanding of the improvement strategy and the fit of the tools within the strategy. Thus they will have a framework for learning and assimilating the use of the tools. The leader should teach the group members how to: (1) code with Interaction Analysis; (2) build matrices (3) interpret matrices; (4) write behavioral objectives (5) plan and conduct a Micro-teach; (6) use and interpret a student feedback instrument; (7) build a student feedback instrument; and (8) use video tape equipment.

Outlines and other useful resources for conducting the FAU teaching sessions are found in the appendix under the appropriate heading, e.g., Interaction Analysis etc.

3. When teachers have worked through the improvement strategy individually and when they have learned to use the tools in the group, the FAU meetings (as mentioned earlier) can change focus during phases II and III. Even though the teaching behavior of each person is still personal, it is likely that most will now be ready to discuss their own behavior in the group. There still may be some need to discuss and practice the use of the tools, and the leader should meet this need. However, in general he should attempt to focus the meetings during phases II and III on the analysis of teaching behavior by the group.

Chapter IV

EVALUATION

Introduction

A major objective of the Michigan-Ohio Regional Educational Laboratory has been to develop and refine a program which will help teachers improve their teaching effectiveness. Since improvement involves change, a program designed to improve teaching effectiveness would have to be concerned, at least in part, with a change in the behavior of teachers. MOREL chose to develop an inservice teacher education program with a major focus on helping teachers change their instructional behavior.

The modes for collection of data for evaluation of the program are: teacher inventories and questionnaires, student attitude and opinion inventories and questionnaires, and systematic behavior observation (employing interaction analysis, audio tape, and video tape). Activities of individual teachers and of the field action groups are carefully chronicled by the MOREL staff member who is the leader of the Field Action Unit.

In any educational development effort the essence of the work is the design-trial-evaluation-redesign cycle. The idea, of course, is to refine the product until it "works" in the field in the judgment of the user. As the developer moves through the redesign cycle, his decisions are based on both formative and summative evaluation. In the early stages the emphasis is on formative evaluation which is based less on rigorous statistical analysis and more on expert observation, the feelings of the participants, and on the achievement of performance criteria. Summative evaluation is conducted after the developers are reasonably well satisfied with the products of their efforts. It involves more classical research designs, careful sampling procedures, rigorous concern for randomness and for control groups. Formative evaluation and summative evaluation, however, do not fall into neat, discrete categories. They overlap somewhat and should be viewed as ends of a continuum. The formative evaluation techniques that were used during the development of the MOREL Teaching Behavior Improvement Program and its leader training component are not described in this document in detail. Some of the formative processes employed were (1) the formulation of performance criteria, (2) consultant observation, (3) written and oral reactions of participants including students, teachers, and administrators, (4) observations of MOREL staff members (5) think-tank analysis and synthesis sessions, (6) individual case studies of participating teachers, (7) comparison and contrast with similar programs, and (8) the judgments of the developers. These formative evaluation procedures, although probably of greater value than the summative evaluations reported in this chapter, are omitted from this presentation simply because they are the commonly-used formative techniques and are, therefore, not unique to this development work. The content of this chapter is essentially a report of the summative evaluation design, its implementation, and its results. It is presented here because the developers believe the persons installing the Teaching Behavior Improvement Program will be helped by both the design and the findings.

In evaluating the Teaching Behavior Improvement Program (TBIP), we are looking for changes in teachers' attitudes, perceptions, and behavior. We are concerned with the extent to which such changes accompany a teacher's participation in our program. We are also looking for a relationship between pupil's attitudes and achievement and the teacher's participation in the MOREL program.

The basic goals of the MOREL program have not changed. However, the model for reaching these goals has been revised as the program has been developed.

The evaluation design has been revised as the model has developed. Some variables have been deleted, some revised, and some added. Some of the hypotheses have also been deleted, some have been revised, and others have remained essentially the same.

Interaction analysis continues to be a major data-gathering mode, with subcategories being used more extensively in coding. Some of the inventories used during the pilot year have since been omitted, and others have been added.

The daily log (diary), kept by each member of the MOREL teacher education staff during the pilot year, proved to be very helpful in assessing the impact of the program, as did a review of audio tapes of Field Action Unit meetings. Before the onset of the summer (1968) program, the format of the diary was revised to include provision for more specific comments and more detailed recording of activities.

A careful assessment of the utility of the revised diary prompted three major changes: The format has been changed, in order to facilitate both the recording and the interpretation of information gathered; the present documentation manual calls for the gathering of pre-post data for all skill-practice sessions; and the present manual not only clearly defines the criteria for competency in the various techniques deemed necessary for success in the MOREL program, but also makes provision for the quantification of the teacher's degree of competency in each of these techniques (e.g., criterion for competency in I.A. coding -- 70% accuracy). It is assumed that teachers who complete the concentrated training in the MOREL Field Action Units will attain the minimum degree of competency defined for each technique.

The major elements of the evaluation design are: (a) variables, (b) definitions, (c) hypotheses, (d) instruments, and (e) results.

Research Design for Teaching Behavior Improvement Program

Essentially, we are interested in determining the overall effectiveness of the MOREL Teaching Behavior Improvement Program in producing immediate change in teachers' classroom behavior and in teachers learning the use of a systematic process of self-improvement which will help them continue to improve.

We expect the effect of the MOREL program to vary with the degree of teacher participation and involvement and with other related variables (see list of independent variables). Degree of teacher involvement-- also used as an outcome (dependent) variable-- is expected to vary with teacher expectations of gain from the MOREL program and with teacher dogmatism. We hope to get at the differential effects by (1) using survey techniques to obtain a measure of overall program effectiveness; (2) using a control group design; and (3) using a one-group design.

Variables

Independent Variables

1. Practice with specific feedback techniques
- *2. Degree of teacher participation (FAU, Non-FAU)
- *3. Degree of teacher involvement
- *4. Dogmatism of teacher
5. Teachers' expectations of gain from MOREL program

Dependent Teacher Variables

Attitude Variables

a. toward self as teacher
b. toward pupils
c. toward teaching
d. toward the MOREL program
e. toward principal of the school
f. perception of own behaviors and students' behaviors

Behavioral Variables

g. defining classroom problems
h. defining desired student behaviors
i. using those skills practiced in FAU sessions
j. relating teaching skills to specific student behaviors
k. teacher-pupil interaction--amount of pupil participation
*l. use of reinforcing teaching patterns
*m. use of restrictive teaching patterns
*n. degree of involvement

Dependent Pupil Variables

Attitude Variables

a. toward teacher
b. toward attending school
c. toward this class
d. toward self
e. perception of teacher's and students' behavior

Behavioral Variables

a. achievement
    1) initiating ideas
    2) verbal participation in class

*See Definition of Terms

Definitions of Terms

The concepts used in the evaluation of outline are defined as follows:

1. Participating teachers are teachers receiving concentrated training in Field Action Units.

2. Non-participating teachers are teachers who are not receiving training in Field Action Units.

3. Teacher involvement is the degree to which participating teachers are committed to and carry out the activities of the Field Action Units.

4. Reinforcing teaching patterns are teacher statements which tend to expand pupil freedom and action by increasing their participation. Asking questions, clarifying what the pupils say, using the pupils' ideas in the classroom discussion, and/or giving praise and encouragement to pupil participation are examples of reinforcing teaching patterns.

5. Restrictive teaching patterns are teacher statements which tend to restrict the freedom of action of pupils by curtailing their participation. Lecturing, giving directions, and giving criticism are examples of restrictive teaching patterns.

6. Dogmatic teachers are teachers who score high on Rokeach's Dogmatism Scale.

General Outcome Hypotheses

Hypotheses One and Two are concerned with the relationship between teachers' use of feedback techniques and a) their examination of their own teaching behavior, b) their setting of achievable goals for themselves and their pupils, c) their improvement in the use of teaching skills practiced, and d) their attitudes toward themselves as teachers, toward teaching, toward the behavior and potential of their pupils, and toward the potential of the MOREL program in helping them improve their teaching behaviors.

Hypothesis One

Compared with teachers who use the feedback techniques the least, teachers who use the feedback techniques the most in skill development will --

a. more frequently recognize and define problems which exist in their classrooms;
b. more frequently define desired student behavior, choosing a teaching skill (or skills) which will elicit such behavior;
c. show greater increase in proficiency in using the skill(s) chosen.

Hypothesis Two

Compared with teachers who use the feedback techniques the least, teachers who use the feedback techniques the most in skill development will show greater change in a positive direction in attitude toward --

a. self as teacher
b. pupils in class
c. teaching
d. the principal of the school
e. participation in the MOREL program

Hypotheses Three through Five are concerned with the effect of participation in the MOREL program on the teachers' perceptions of their own and their pupils' perceptions of these behaviors and attitudes; the teachers' ability to describe these behaviors and attitudes; their modification of their own behaviors; and their attitudes toward themselves as teachers, toward teaching, and toward their pupils.

Hypothesis Three

Compared with teachers not participating in the MOREL program, teachers who participate in the MOREL program will --

a. use reinforcing teaching patterns more frequently
b. use restrictive teaching patterns less frequently

Hypothesis Four

Compared with teachers not participating in the MOREL program, teachers who participate in the MOREL program will show greater positive change in attitude toward --

a. self as teacher
b. pupils in class
c. teaching
c. principal of the school

Hypothesis Five

When classes whose teachers have been participating in the MOREL program are compared with classes whose teachers have not been participating in the program, there will be less discrepancy in participating classes between --

a. pupils' perceptions of the teacher's behaviors and the teacher's perception of his own behaviors
b. pupils' perception of their own behaviors and the teacher's perception of their behaviors

Hypothesis Six

After teachers have participated in the MOREL program, there will be less discrepancy than before participation between --

a. pupils' perceptions of the teacher's behaviors and the teachers' perception of his own behaviors
b. pupils' perceptions of their own behaviors and the teacher's perception of their behaviors

Hypothesis Seven

Teachers who expect to gain most from the MOREL program will be more involved than will teachers who expect to gain the least from the program.

Hypothesis Eight

Compared with teachers who are the most dogmatic (as measured by Rokeach's scale), teachers who are the least dogmatic will become more involved in the MOREL program.

Hypothesis Nine

Compared with pupils in classes having teachers who do not participate in the MOREL program, pupils in classes of teachers participating in the MOREL program will have more positive changes in attitude toward --

a. the teacher
b. attending school
c. the class
d. self

Hypothesis Ten

Compared with pupils in classes having teachers who do not participate in the MOREL program, there will be more verbal participation on the part of pupils in the classes of teachers who participate in the MOREL program.

Hypothesis Eleven

Compared with pupils in classes having teachers who do not participate in the MOREL program, pupils in classes of teachers participating in the MOREL program initiate ideas more frequently.

Data-Gathering Modes

Teacher Inventory

This inventory is a paper-and-pencil instrument which contains five sections: (1) semantic differential consisting of 32 adjective pairs in which the teacher responds to the following headings: "Myself As a Teacher," "The Pupils in My Class," "The Principal of My School, " "Teaching," and "Participating in the MOREL Program" (2) Rokeach's Dogmatism Scale (Troldahl's short-form); (3) an inventory entitled "In My Class,"[1] for measuring a teacher's self-description; (4) a social reaction inventory;[2] and (5) demographic data.

Flanders' Interaction Analysis

Flanders' Interaction Analysis is a method of systematic observation and tallying of teacher and pupil verbal statements into a totally inclusive set of categories at a rate of approximately one tally every three seconds.

Student Inventory

This inventory is a paper-and-pencil instrument which contains two sections: (1) Michigan Pupil Attitude Inventory -- an attitude instrument developed by Flanders. Items deal with topics such as teacher attractiveness, motivation, fairness of rewards and punishments. (2) Responsibility Inventory[3] -- an instrument which measures the degree of responsibility which a child is willing to accept for the things that happen to him.

Teacher Behavior Inventory

This instrument, entitled "In This Class," consists of a series of scales designed to measure a pupil's description of his teacher and the teacher's behavior.

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[1] An instrument designed by Betty Morrison, Case-Western Reserve University.

[2] Adapted from J.B. Rotter's Internality-Externality Scale with added items by Charles Eiszler and Betty Morrison, Case-Western Reserve University.

[3] Rotter's Internality-Externality Scale, adapted by Morrison for use with children.

Western Michigan University "Student-Opinion Questionnaire"

This questionnaire is a paper-and-pencil instrument consisting of fifteen questionsdesigned to provide student feedback to help teachers change their behavior.

MOREL Student Attitude Inventory

This instrument is a semantic differential consisting of 32 adjective pairs in which the students respond to the following headings: "My Teacher," "My Class," "Attending School," and "Myself."

Interest Questionnaire

This includes questions asking a teacher for his reasons for entering the MOREL program his expectations from the program, and (upon conclusion of the program) questions asking for his evaluation of the MOREL program.

Diary (Documentation Manual)

This manual consists of a day-to-day written record of all meetings of the MOREL inservice teacher training leader with individuals or groups involved in the program. This recording is done by the leader.

Post Meeting Reaction Form

This form is a modification of Thelen's eight-item questionnaire measuring whether the day's experiences in the Field Action Unit meeting were involving, challenging, and apparently worthwhile to the participants in the meeting.

Program Evaluation Interview

A questionnaire to be used in interviewing each teacher in the Field Action Units upon conclusion of the program.

Content Interview

An interview is arranged with each individual teacher with the purpose of collecting from him some data pertaining to his knowledge and understanding of the skills which he was taught during the course of his participation in the MOREL program.

Post-Meeting Reaction Forms for Students

Each form is a questionnaire to which the students respond, each one making an appraisal of the teacher's success in using a specific technical teaching skill.

Reliability of Instruments

General reliability has been established for the instruments which were used in the statistical analyses. The Spearman-Brown formula, used to calculate reliability coefficients for the Michigan Pupil Attitude Inventory, has produced reliability coefficients of above .90. Troldahl[1] reports a reliability coefficient of .94 for the short form (20-item) of the Rokeach Dogmatism Scale.

Osgood and his associates[2], when using the term reliability, refer to source reproducibility. They report the average error of measurement of the semantic differential scales as always being less than a single scale unit (for evaluative scales, about a half of a scale unit), and, from their analyses, they conclude that this is satisfactory, i.e., that the error is sufficiently small so as to indicate reliability of the sematic differential as a measuring instrument.

Validity has also been established for the instruments used in the statistical analyses.

Description of the Population

School Neighborhoods

Late in 1968, two school districts were selected to participate in the MOREL program. One of these districts is located in a suburb in the Detroit area and has a predominantly black population. The other is a suburban school district in the Grand Rapids, Michigan, area where the population is predominantly white; two black families live in the community.

The MOREL program was operated in an elementary school in the Detroit area school system. Approximately 460 pupils attend this school. Most of the families in the school neighborhood live in a federal housing project which is composed of multiple dwellings, usually two- or four-family. These dwellings are not more than ten years old. The amount of rent charged is dependent upon the income of the family. There is a relatively small number of single homes, which are owner-occupied. These homes are only a few years old and are in the $14,000-18,000 price range. Approximately two-thirds of the families do not have a male parent living in the home. The average amount of schooling completed by parents is less than eighth grade. Most of the employed parents are unskilled or semi-skilled laborers. Their average income is about $7,000. There are only a few professional people--not more than ten--living in the area.

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[1] V. C. Troldahl and F. A. Powell. "Short-term Dogmatism Scale for Use in Field Studies." Social Forces. December, 1965.

[2] Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum. The Measurement of Meaning. Urbana: University of Illinois Press, 1967.

Some of the control data were gathered in the elementary school in which the MOREL program was in operation, while some of the data were gathered from two other elementary schools in the same school district.

One of these two schools is located in a neighborhood which closely approximates the neighborhood described above. The other school is located in an integrated area, about two-thirds of the families being black and one-third white. Most of the homes are single dwelling, owner-occupied, in the $15,000-17,000 price range, while a few of the homes are more modestly-priced, and some are more expensive.

The school in the Grand Rapids area which is participating in the MOREL program is a junior high school with approximately 685 students. There are some farms surrounding the community, but agriculture is no longer the predominant industry. The suburb is residential, most of its inhabitants working in nearby communities. Homes in the area are a combination of the new and the old, the older homes being in the $17,000-20,000 price range by today's standards, while the newer homes are in the $20,000-40,000 price range. The people are typically middle class--mostly blue-collar workers, but also some professional people.

All junior high school data, including control data, were gathered from one school.

Teachers

The teacher population consisted of nine teachers--four women at the elementary school, and two women and three men at the junior high school. All were volunteers. Two additional teachers from the elementary school had begun the program but dropped out during the third week.

Of the nine teachers who particpated in the program, two held the master's degree. Each of the remaining seven held the bachelor's degree, with five also having completed some graduate courses. The two teachers with master's degrees were at the elementary school. Each of them had been teaching more than fifteen years. The two teachers who had done no graduate work were at the junior high school, and each had fewer than six years of teaching experience.

None of the junior high school teachers had taught more than ten years. None of the elementary teachers had taught fewer than ten years, and one of them had been teaching for more than thirty years.

Control data were gathered from ten teachers and their classes. Six of the teachers were teaching in elementary schools--one of them in the same school as the elementary teachers participating in the MOREL program, while the others were teaching in two nearby elementary schools. The remaining four teachers were on the faculty of the junior high school in which the MOREL program was being conducted.

The range of teaching experience and educational background were much the same for the control teachers as they were for the teachers who completed the MOREL training sequence.

Data gathered from classes of both experimental and control teachers before the MOREL program began provided further evidence that experimental and control teachers were from populations which did not differ significantly. An analysis of variance done on the junior high school pupil attitude scores (Michigan Pupil Attitude Inventory) produced an F ratio of 1.29 while an analysis of variance on the elementary pupil attitude scores produced an F ratio of 3.69, both ratios indicating no difference in class perceptions of their teachers' behaviors and attitudes. See Tables 9 and 10.

All teachers were coded under similar conditions, the observers using Flanders' Interaction Analysis. Patterns of teaching (indirect-direct) of the experimental and control teachers were compared, as were percentages of time devoted to student talk and to student initiation of ideas. The Mann-Whitney U Test was used to compare information gathered in the control classes with information gathered in the experimental classes before the MOREL program was begun. Data used for this comparison are found in Table 3 and Table 4. No initial differences between the two groups were found in patterns of teaching, percentage of time devoted to student talk, or percentage of time devoted to student initiation of ideas.

The Mann-Whitney U Test was also used to compare initial scores on the semantic differentials to which both experimental and control teachers responded.

Pupils

The pupils in the classes of the four elementary teachers participating in the MOREL program were in the fourth and fifth grades. The *Otis Lennon Mental Ability Test*, Form J, had been administered to the fourth-grade pupils about one month after they had entered the fourth grade. The battery of Stanford Achievement Tests, Form W, had been administered to the fifth-grade pupils at the same time.

The mean IQ, as measured by the Otis test, of the fourth-grade pupils was 87. The range was from 50 to 133, seven of the pupils scoring below 70. Eleven of the 61 pupils were at or below the fifth percentile of their age norms, while three of them were at or above the 75th percentile.

Approximately one half of the pupils in the fifth grade classes were at or below the fifth percentile in achievement on more than one half of the achievement tests. Three pupils scored above the 75th percentile on at least one test.

The pupils in the classes of the junior high school teachers participating in the MOREL program and the pupils in the control classes were in grades seven, eight, and nine. Their IQ scores generally were in the 90-115 range.

The pupils in the control classes in the elementary schools had approximately the same range of IQ and achievement scores as did the pupils in the classes of teachers participating in the MOREL program (experimental classes). The average of IQ scores of pupils in the fourth grade classes was about two points higher than the average in experimental classes, while the average of achievement scores in fifth grade control classes was about .3 year higher than in experimental classes.

Data Collection

Described below is the time sequence followed in the collection of data.

Teacher Behaviors, Attitudes, and Perceptions

In January, 1969, and again in April, 1969, the "Teacher Inventory" was administered to all teachers participating in the MOREL program (hereinafter referred to as "experimental teachers"), as well as to all control teachers. The experimental teachers also responded to the "Interest Questionnaire."

The administration of the teacher instruments was followed by observation of each experimental class from time to time, usually for 20 to 30 consecutive minutes, the observer using Interaction Analysis.

At the conclusion of the MOREL program, each teacher, experimental and control, was asked to teach a 20-minute lesson which involved discussion. These lessons were observed, the observers again using Interaction Analysis.

Each experimental teacher did several Microteaches, which were recorded on video tape and/or audio tape, in connection with development of technical teaching skills. Tapes were reviewed and analyzed, and information was recorded in the diary (documentation manual). Information on the teachers' progress in mastering techniques, in recognizing problems, and in applying information, techniques, and procedures to the solution of their problems was also recorded in the diary. In the experimental classes, pupils' perceptions of their teachers' behaviors and attitudes were gathered at the time the MOREL program was instituted, during the time the program was in operation, and upon its conclusion; while, in the control classes, pupils' perceptions were collected only at the beginning of the program and upon its conclusion.

Student Behaviors, Attitudes, and Perceptions

In January, 1969, and again in April, 1969, the "Student Inventory," the "Teacher Behavior Inventory," and the "MOREL Student Attitude Inventory" were administered to all experimental and control classes, while the Western Michigan University "Student Opinion Questionnaire" was administered to experimental classes only.

Behaviors of students in experimental classes were recorded, along with teacher behaviors, on video tape, on audio tape, and by Interaction Analysis coding.

Analysis of the Data

Before the hypotheses were tested, factor analyses of data collected to measure teacher attitud variables a-f and student attitude variables a-e were performed. The factors extracted in each instance will be identified and described in the discussion of the testing of Hypotheses 2 and 9.

Testing the Hypotheses

The major purpose of the evaluation was to find out whether the teachers in the program had changed in behavior. It was predicted that they would. It was further predicted that behavioral changes would be accompanied by attitudinal changes. It was also hypothesized that pupils in the classes of these teachers would change in behavior and attitudes.

Before the hypotheses were tested, they were restated in operational terms appropriate to the data being analyzed. The hypotheses stated in operational terms follow.

Hypothesis One

A. Teachers above the median in number of instances of use of feedback techniques recorded in the documentation manual will have more recorded instances of their having recognized and defined classroom problems than will teachers below the median in recorded number of instances of use of feedback techniques.

B. Teachers above the median in number of instances of use of feedback techniques recorded in the documentation manual will have more recorded instances of defining desired student behavior(s) and choosing a teaching skill (or skills) which will elicit such behavior(s) than will teachers below the median in recorded number of instances of use of feedback techniques.

C. When compared with teachers below the median in number of instances of use of feedback techniques in the documentation manual, teachers above the median will--

   1. show, on IA matrices, a greater change in percentage of time recorded in categories and category sequences which describe the components of the skill practiced;

   2. show greater positive change in class ratings on the student feedback instruments used upon completion of a sequence of skill practice.

Testing Hypothesis One

The number of recorded instances of use of feedback techniques was tallied and counted for each teacher as were the number of recorded instances of recognizing and defining classroom problems and the number of recorded instances of defining desired student behaviors--each behavior accompanied by the choice of a teaching skill which would elicit that behavior.

This information is recorded in Table 1.

Table 1

NUMBER OF RECORDED INSTANCES OF FEEDBACK TECHNIQUES, DEFINED CLASSROOM PROBLEMS, AND DEFINED STUDENT BEHAVIORS

Teacher Number	8	1	3	5	2	6	9	7	4
	Below Median				Median	Above Median			
Use of Feedback Techniques	23	25	25	25	27	29	41	36	38
Classroom Problems Defined	2	2	2	2	5	2	6	5	5
Desired Student Behavior Defined	2	2	2	2	3	2	3	4	4

The median number of recorded instances of use of feedback techniques was 27, recorded for Teacher #2. The Mann-Whitney U Test was performed on the data for teachers above and below the median. Since none of the teachers above the median number of recorded instances of use of feedback techniques had fewer tallies than those below the median, either defining classroom problems or in defining desired student behaviors, U was found to be equal to zero in both cases. With four cases in each group, U=0 has a probability of occurrence of p=.014 (one-tailed test). In other words, these differences between the teachers above the median and those below the median could have occurred by chance fewer than twice in a hundred times. The significant values of p (.014 in both cases) lend support to Hypothesis One, parts A and B, and it can be assumed that there is a relationship between the number of times a teacher uses feedback techniques and the number of times he will recognize and define classroom problems, define desired student behaviors, and choose a teaching skill (or skills) which will elicit such behavior(s).

The percentages of time recorded on IA matrices in categories and category sequences which describe the components of teaching skills, both before and after practice of skills chosen by each teacher, are entered in Table 2, as are class ratings, on student feedback instrument, of each teacher's use of skill(s). The average differences between percentages before and after skill practice, as well as the average differences between pre- and post-administration of the student feedback instruments, are also entered in Table 2.

Table 2

SKILLS PRACTICED BY TEACHERS: PERCENTAGE OF CLASS TIME SPENT ON CHOSEN SKILL, STUDENT RATING OF SUCCESS.

Teacher Number	8	1	3	5	2	6	9	7	4
	Below Median				Median	Above Median			
Use of Feedback Technique	23	25	25	25	27	29	41	36	38
***Percentage of Time Recorded in Categories Describing Skill(s)	*Pre **Post 18 22 15 5	Pre Post 18 17 4 8	Pre Post 17 17	Pre Post 15 17	Pre Post 6 34	Pre Post 7 20 31 28	Pre Post 16 24 8 19	Pre Post 13 63 4 43	Pre Post 2 54 5 24
Average Change	-3	+1.5	0	+2	+28	+5	+9.5	+44.5	+35.5
Class Rating on Student Feed-back Instruments	5.1 5.2 5.5 6.2	3.9 4.0 5.4 5.3	4.7 4.6	5.5 5.8	4.6 4.9	4.5 5.4 3.8 3.5	3.2 5.6 3.4 4.3	4.7 5.4 3.3 3.8	4.9 5.5 4.3 5.0
Average Change	+.4	0	-.1	+.3	+.3	+.3	+1.65	+.6	+.65

*before practice on skill
**after practice on skill
***from IA matrix

The Mann-Whitney U Test was performed on the change scores, comparing teachers who were above the median on number of recorded instances of use of feedback techniques with those below the median. When the percentages of time recorded in categories describing the skill practices were compared, U was found to be equal to zero. With four cases in each group, U=0 has a probability of occurrence of $\underline{p}$=.014. The comparison of class ratings on feedback instruments yielded U=1, which, in this case, has a probability of occurence of $\underline{p}$=.029. One-tailed tests were again used, since the direction of difference was predicted. The significant values of $\underline{p}$ lend support to Hypothesis One, part C, providing evidence that there is a relationship between the number of times a teacher uses feedback techniques and his gain in proficiency in the use of teaching skills which he practices.

However, since the teachers did not all practice the same skills, the results of the comparisons may be viewed with some reservations.

When data on Teacher #6 are examined, it is interesting to note that the large increase in percentage of time recorded in categories describing the first skill practiced is accompanied by a large increase in the class rating of his use of the skill, while the small decrease in percentage recorded for the second skill is accompanied by a small decrease in the class rating. In only one case (Teacher #8, skill 2) is the direction of change in class rating of the teacher's use of a skill the reverse of the direction of change in percentage of time devoted to categories describing the skill.

Furthermore, discussion with teachers and observation revealed that, as they increased their use of feedback techniques, the teachers' sensitivity of relationships between student behaviors and the use of teaching skills increased.

Hypothesis Two

When teachers participating in the MOREL program respond to semantic differential inventories--"Myself As a Teacher," "The Pupils in My Class," "Teaching," "The Principal of My School," and "Participating in the MOREL Program,"--the difference between scores on pre- and post-administration of the inventories will be greater (the post-scores being higher) for teachers above the median in number of instances of use of feedback recorded in the documentation manual than it will be for teachers below the median in recorded number of instances of use of feedback techniques.

Of the factors extracted in the factor analysis of the semantic differential inventories, the factors used in testing the hypothesis are as follows:

Myself As a Teacher--

Factor 1, labeled "Evaluation," includes items *1, 4, *5, *7, *8, *9, 10, 13, *14, 15, *18, *22, and *24.

The Pupils in My Class--

Factor 1, labeled "Evaluation," includes items 4, *8, *9, *11, 12, 13, 17, *22, *24, 25, *26, and *29.
Factor 2, labeled "Potency," and including a "security" component, is made up of items *5, *6, *14, 19, 20, and 21.

Teaching---

Factor 1, labeled "Evaluation," consists of items *1, 4, *5, *6, *7, *8, *9, 10, *11, 12, 13, 15, *18, *22, and *24.
Factor 2, labeled "Potency," and including a "security" component, consists of items *14, 15, 17, *19, 20, 21, and 28.

The Principal of My School--

Factor 1, labeled "Evaluation," consists of items 4, *9, 13, 17, *24, 25, *26, and *29.
Factor 2, labeled "Security," consists of items *1, *7, *8, 17, and 20.

Participating in the MOREL Program--

Factor 1, labeled "Evaluation," is made up of items *1, *5, *6, *8, *9, 10, *11, 12, 13, *18, *19, 21, and *22.
Factor 2, labeled "Security," is made of of items *7, *14, 15, *16, 20, and *27.

The items marked * are scored in reverse (7-1 instead of 1-7).

Testing Hypothesis Two

The Mann-Whitney U Test was performed on the pretests to determine whether the teachers above the median in recorded instances of use of feedback techniques differed significantly from those teachers below the median with respect to the attitudes expressed on the semantic differential inventories. The two-tailed test was used. No significant differences were found except on "The Principal in My School" and on Factor One of "Participating in the MOREL Program." It might be noted that, since the teachers were not all from one school, different principals were being described.

The change scores are misleading in some cases. For example, in the instances where zero changes were computed, initial ratings were so high that little change (in some cases, no change) was possible.

The Mann-Whitney U Test was performed on both post-scores and change scores. No significant differences were found between change scores of teachers above the median and change scores of those below the median. Neither were there any significant differences between post-scores of the two groups on the inventories where the pre-test scores did not differ. Data used in testing Hypthesis Two are included in Table 6.

The results of this analysis do not lend support to the predictions made in Hypothesis Two.

Hypothesis Three

When compared with control teachers (teachers not participating in the MOREL program), teachers participating in the MOREL program will have higher I/D and i/d ratios, as computed from Interaction Analysis matrices constructed from coding gathered in the classes after the MOREL program has been completed.

Reinforcing teaching patterns, as defined earlier in this chapter, include teacher talk which Flanders categorizes as having direct influence, while restrictive teaching patterns include teacher talk categorized as direct.

The I/D ratio (indirect-direct ratio) is computed by dividing the total number of tallies in Categories 1-4 by the total number of tallies in Categories 1-4 plus 5-7. For example, an I/D ratio of .5 means that for every indirect teacher-statement there was one direct teacher-statement; an I/D ratio of .75 means that for every three indirect statements there was one direct statement, etc.

The i/d ratio (a revised I/D ratio) is employed in order to find out what kind of emphasis is given to motivation and control in a particular classroom. It is computed by dividing the total number of tallies in Categories 1-3 by the total number of tallies in Categories 1-3 plus those in Categories 6 and 7. This ratio eliminates effects of Categories 4 and 5 (lecture and asking questions) and gives information as to whether the teacher is restrictive or reinforcing in his approach to motivation and control.

Testing Hypothesis Three

Data used to determine whether the control and experimental teachers differed significantly with respect to patterns of teaching are shown in Table 3.

Table 3

I/D AND i/d RATIOS AND RANKINGS FOR * PARTICIPATING (PRE-) AND **NON-PARTICIPATING TEACHERS

I/D Ratio				i/d Ratio			
*E Pre-Ratio	Rank	**C Ratio	Rank	*E Pre-Ratio	Rank	**C Ratio	Rank
.56	19	.27	3	.92	9	.30	1
.29	4	.33	6.5	.31	2	.62	16
.51	17	.17	1	.87	18	.52	12
.33	6.5	.37	8	.35	4.5	.61	15
.32	5	.45	12.5	.50	10.5	.37	7
.45	12.5	.44	11	.59	13	.60	14
.46	14	.50	16	.35	4.5	.36	6
.49	15	.41	10	.44	8.5	.44	8.5
.54	18	.24	2	.50	10.5	.81	17
		.40	9			.34	3
$n_1=9$	$R_1=111$	$n_2=10$	$R_2=79$	$n_1=9$	$R_1=90.5$	$n_2=10$	$R_2=89.5$

$$U = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$
$$= 90 + \frac{90}{2} - 111$$
$$= 135 - 111 = 24$$
$U \geq 24$
$\therefore p > .10$ (two-tailed test)

$$U = 90+45-90.5$$
$$\neq 44.5$$
$U \geq 24$
$\therefore p$ .10 (two-tailed test)

*Experimental

**Control

The differences between the means of both the I/D ratios and the i/d ratios of the two groups were not statistically significant. The evidence was that the experimental and control teachers were from the same population.

Data used to compare teaching patterns employed by experimental teachers after participation in the MOREL program with teaching patterns employed by control teachers are found in Table 4. The Mann-Whitney U Test was used to make the comparison.

Table 4

I/D AND i/d RATIOS AND RANKINGS FOR *PARTICIPATING (POST-) AND **NON-PARTICIPATING TEACHERS

I/D Ratio				i/d Ratio			
*E Ratio	Rank	**C Ratio	Rank	*E Ratio	Rank	**C Ratio	Rank
.60	14	.27	3	.97	16.5	.30	1
.88	19	.33	4	.96	15	.62	9
.71	15	.17	1	.98	18.5	.52	6
.58	13	.37	5	.98	18.5	.61	8
.54	12	.45	9	.80	10	.37	4
.49	10	.44	8	.87	13	.60	7
.73	16	.50	11	.85	12	.36	3
.87	18	.41	7	.97	16.5	.44	5
.78	17	.24	2	.90	14	.81	11
		.40	6			.34	2
$n_1=9$	R =134	$n_2=10$	$R_2=56$	$n_1=9$	$R_1=134$	$n_2=10$	$R_2=56$

*Experimental
**Control

$U = 90+45-134$

$= 135-134 = 1$ $\qquad$ $U=1$

$U < 8$

$p < .001$
(one-tailed test) $\qquad$ $p < .001$
(one-tailed test)

The significant values of p lend support to Hypothesis Three, providing evidence that teachers who had participated in the MOREL program did indeed use reinforcing teaching patterns more frequently and restrictive teaching patterns less frequently than did teachers who had not participated in the MOREL program. The probability of occurrence of $p < .001$ indicates that the differences between participating and non-participating teachers in both I/D and i/d ratios could have occurred by chance fewer than once in a thousand times.

The Mann-Whitney U Test was also employed to compare teaching patterns employed by the experimental teachers before and after participation in the MOREL program. Data are presented in Table 5.

Table 5

I/D AND i/d RATIOS AND RANKINGS (PRE- AND POST-) FOR *PARTICIPATING TEACHERS

I/D Ratio				i/d Ratio			
Pre-Ratio	Rank	Post-Ratio	Rank	Pre-Ratio	Rank	Post-Ratio	Rank
.56	11	.60	13	.92	13	.97	15.5
.29	1	.88	18	.31	1	.96	14
.51	8	.71	14	.87	10.5	.98	17.5
.33	3	.58	12	.35	2.5	.98	17.5
.32	2	.54	9.5	.50	5.5	.80	8
.45	4	.49	6.5	.59	7	.87	10.5
.46	5	.73	15	.35	2.5	.85	9
.49	6.5	.87	17	.44	4	.97	15.5
.54	9.5	.78	16	.50	5.5	.90	12
$n_1=9$	$R_1=50$	$N_2=9$	$R_2=121$	$n_1=9$	$R_1=51.5$	$n_2=9$	$R_2=119.5$

*Experimental

$$U = n_1n_2+\frac{n_2(n_2+1)}{2}-R_2$$

$U = 81=45-121$

$= 126-121 = 5$

$U < 7 \therefore p < .001$

(one-tailed test)

$U = 81+45-119.5$

$= 126-119.5 = 6.5$

$U < 7$

$\therefore p < .001$

(one-tailed test)

The significant values of p provided further evidence that teachers did use reinforcing teaching patterns more frequently and restrictive patterns less frequently than they had before participation in the MOREL program.

Hypothesis Four

When teachers respond to semantic differential inventories--"Myself As a Teacher," "The Pupils in My Class," "Teaching," and "The Principal of My School," the difference between the scores on pre- and post-administration of the inventories will be greater in a positive direction for teachers who have participated in the MOREL program than it will be for teachers who have not participated in the MOREL program.

Testing Hypothesis Four

The factors extracted for each concept in the factor analyses of the semantic differential inventories used in testing Hypothesis Four are identified earlier in this chapter. The data gathered for testing the hypothesis are recorded in Table 6.

Table 6

SCORES ON SEMANTIC DIFFERENTIAL INVENTORIES-- PARTICIPATING* AND NON-PARTICIPATING** TEACHERS

Concept	No.	Experimental Teachers			Control Teachers		
		Pre-	Post-	Diff.	Pre-	Post-	Diff.
Myself As a Teacher (13 items)	5	91	91	0	88	89	+1
	3	84	91	+7	71	73	+2
	8	72	61	-11	76	80	+4
	1	91	88	-3	87	83	-4
	4	85	85	0	79	84	+5
	9	60	77	+17	85	91	+6
	7	69	75	+6	70	73	+3
	2		data missing		68	62	-6
	6	52	49	-3	74	75	+1
					82	84	+2
The Pupils in my Class-- Factor 1 (12 items)	5	75	82	+7	75	75	0
	3	75	83	+8	54	57	+3
	8	57	55	-2	65	64	-1
	1	63	72	+9	76	74	-2
	4	60	78	+18	80	80	0
	9	69	70	+1	69	75	+6
	7	65	76	+11	72	69	-3
	2	58	62	+4	70	63	-7
	6	52	50	-2	70	72	+2
					82	82	0
Factor 2 (6 items)	5	27	39	+12	30	30	0
	3	30	41	+11	30	25	-5
	8	21	24	+3	32	30	-2
	1	27	30	+3	30	32	+2
	4	30	35	+5	33	32	-1
	9	30	36	+6	37	21	-16
	7	30	32	+2	36	33	-3
	2	30	32	+2	33	29	-4
	6	27	24	-3	32	33	+1
					35	34	-1

Table 6 (cont.)

Concept	No.	Experimental Teachers			Control Teachers		
		Pre-	Post-	Diff.	Pre-	Post-	Diff.
Teaching	5	105	105	0	105	97	-8
	3	89	101	+12	93	91	-2
Factor 1	8	83	65	-18	95	99	+4
	1	99	95	-4	93	90	-3
(15 items)	4	86	97	+11	93	86	-7
	9	81	90	+9	99	98	-1
	7	90	91	+1	89	95	+6
	2	88	88	0	80	72	-8
	6	57	49	-8	90	88	-2
					104	99	-5
Factor 2	5	49	49	0	46	43	-3
	3	37	46	+9	46	48	+2
(7 items)	8	34	22	-12	41	39	-2
	1	43	45	+2	38	42	+4
	4	32	38	+6	45	31	-14
	9	32	36	+4	39	45	+6
	7	35	32	-3	41	42	+1
	2	39	40	+1	36	29	-7
	6	29	30	+1	44	43	-1
					48	47	-1
The Principal	5	53	56	+3	43	47	+4
	3	56	56	0	48	48	0
of My	8	53	52	-1	54	47	-7
	1	56	56	0	54	51	-3
School	4	39	47	+8	56	54	-2
	9	40	44	+4	55	52	-3
Factor 1	7	41	44	+3	46	46	0
	2	46	47	+1	32	29	-3
(8 items)	6	43	38	-5	39	40	+1
					56	50	-6

Table 6 (cont.)

Concept	No.	Experimental Teachers			Control Teachers		
		Pre-	Post-	Diff.	Pre-	Post-	Diff.
Factor 2 (5 items)	5	35	35	0	24	23	-1
	3	35	35	0	29	23	-6
	8	29	32	+3	33	25	-8
	1	35	29	-6	28	30	+2
	4	22	26	+4	35	31	-4
	9	22	28	+6	35	30	-5
	7	20	18	-2	31	31	0
	2	27	33	+6	16	16	0
	6	29	26	-3	31	30	-1
					34	33	-1
Participating in the MOREL Program Factor 1 (13 items)	5	82	91	+9			
	3	64	85	+21			
	8	76	84	+8			
	1	82	82	0			
	4	88	89	+1			
	9	78	85	+7			
	7	71	82	+11			
	2	78	80	+2			
	6	71	61	-2			
Factor 2 (6 items)	5	39	40	+1			
	3	36	38	+2			
	8	35	37	+2			
	1	39	36	-3			
	4	31	33	+2			
	9	21	34	+13			
	7	27	33	+6			
	2	20	20	0			
	6	28	21	-7			

*Experimental
**Control

Inspection of the data revealed that many of the initial scores were such that, except for the concept "The Pupils in My Class," comparisons of changes would be misleading, if not meaningless (i.e., initial ratings were so high in 20% to approximately 50% of the cases that little or no change was possible).

Change scores of all teachers were ranked for responses to "The Pupils in My Class." The Mann-Whitney U Test was performed to compare scores of experimental and control teachers. For Factor 1, U was equal to 19. With $n_1=9$ and $n_2=10$, U=19 has a probability of occurrence of $\underline{p}=.025$. In other words, the evidence was that these differences between experimental and control teachers could have happened by chance fewer than three times in a hundred. Application of the Mann-Whitney U Test to the Factor 2 rankings yielded a U of 7.5, indicating that the probability of the differences between experimental and control teachers occurring by chance was even less than in the case of Factor 1.

The significant values of $\underline{p}$ lend support to Hypothesis Four, Part B, and it may be assumed that there is a relationship between teachers' attitudes toward their pupils and their participation in the MOREL program.

On the other hand, the data offer no support to Parts A, C, and D of Hypothesis Four. It cannot be assumed that there is a relationship between teachers' participation in the MOREL program and changes in attitudes toward themselves as teachers, toward teaching, or toward their school principals.

The pre- and post-scores of experimental teachers were compared to find out where significant changes had occurred for individual teachers. The sign test was used to make the comparison.

For the concept "Myself as a Teacher," three teachers showed a significant positive change ($\underline{p}=.003$, $\underline{p}=.016$, $\underline{p}=.013$), while the scores on the pre-tests of two teachers were so high that there was no room for positive change. The evidence is that three of the teachers viewed themselves as better teachers. None of the other changes was significant.

The changes on "The Pupils in My Class," Factor One, were as follows: a significant positive change for three teachers ($\underline{p}=.035$, $\underline{p}=.001$, and $\underline{p}=.002$), all other changes not significant--four of them in the predicted direction. The changes for Factor Two were: a significant positive change for two teachers ($\underline{p}=.03$ in both cases), a change approaching significance for one teacher ($\underline{p}=.06$), all other changes were non-significant--five of them in the predicted direction, however. The evidence is that, after completing the MOREL program, none of the teachers viewed their pupils less positively, while three of them saw their pupils as more attractive, and two of them saw their pupils as having more potential.

For the concept "Teaching," Factor One, two teachers showed a significant positive change ($\underline{p}=.006$, $\underline{p}=.02$), two changes approached significance in a positive direction ($p=.055$, $\underline{p}=.06$), and two had no room for change because of high scores on the pre-test. There were no significant changes in Factor Two.

There were no significant changes on either factor of the concept "The Principal of My School."

For the concept "Participating in the MOREL Program," Factor One, the results were as follows: three teachers with so many items scored high on the pre-test that there was no room for significant change, two non-significant changes in the predicted direction (scores were high), three significant positive changes ($\underline{p}=.002$, .008, and .031, respectively), while one teacher tended to view the program less positively than he had at its inception (on most items his final assessment of the program was neutral, but change was not significant). It can be concluded that the teachers viewed the program as valuable, although one teacher expressed a generally neutral view.

On Factor Two, there was only one significant positive change (p=.031) and one approaching significance (p=.062). However, the pre-scores for four teachers were so high that significant positive change was not possible. One teacher's change was in a negative direction but was not significant. The evidence is that four teachers felt very secure in entering the program; two of them became significantly more secure as they participated in the program; while one teacher tended to feel less secure, although the change was not significant. (This is the same teacher whose perception of the value of the program tended to become less positive).

Sign tests were also performed on the control data. Only two teachers showed significant change in any area, and in both cases the change was in the negative direction. The indication was that one control teacher viewed teaching and the pupils less positively than before,and one teacher perceived the principal as less secure.

Hypothesis Five

When teachers respond to the scale, "In My Class," and their pupils respond to the scale, "In This Class," the difference between a teacher's score and the mean score of his class will be greater in classes where the teacher has not participated in the MOREL program than it will be in classes where the teacher has participated in the MOREL program. A discussion of this hypothesis is included with the discussion of Hypothesis Six.

Hypothesis Six

When teachers who have participated in the MOREL program respond to the scale, "In My Class," and their pupils respond to the scale, "In This Class," the difference between a teacher's score and the mean score of his class before the teacher's participation in the MOREL program will be greater than it will be after the teacher's participation in the MOREL program.

Data were collected to test Hypothesis Five and Six. Factor analyses were performed on the inventories--"In My Class" and "In This Class." However, time did not permit processing of the data.

Hypothesis Seven

Teachers participating in the MOREL program who make the largest number of statements spelling out specifically what they expect to gain from the MOREL program will be above the median in number of recorded instances of engaging in MOREL program activities, while those teachers making the fewest such statements will be below the median.

Testing Hypothesis Seven

One teacher had been absent for about three weeks of the time during which the program had been in operation. The data gathered on her were omitted in testing this hypothesis, since her absence affected the number of times she could engage in MOREL program activities. Data from eight teachers were used. The observations used to test Hypothesis Seven are recorded in Table 7.

Table 7

RELATIONSHIPS BETWEEN TEACHERS' EXPECTATIONS OF MOREL PROGRAM AND THEIR INVOLVEMENT IN THE PROGRAM--EIGHT EXPERIMENTAL TEACHERS

	Below Median				Above Median			
Number of Specific Statements of Expectations	1	2	2	2	3	4	4	5
*Recorded Instances of Involvement	40	43	45	39	43	51	56	52

*Excluding attendance at regular FAU meetings

The Mann-Whitney U Test was performed on the observations of recorded instances of involvement in the program, comparing teachers who were above the median in number of statements spelling out specifically what they expected to gain from the MOREL program with those below the median.

Since _one_ of the teachers above the median in statements of expectation had fewer recorded instances of involvement than did _one_ of the teachers below the median, U=1. With four cases in each group, U=1 has a probability of occurrence of _p_=.029 (one-tailed test). The evidence is that the differences between teachers above the median and those below the median could have occurred by chance only about three times in a hundred.

A word of caution might be injected here. Quantification of involvement in a program is difficult and can probably be only an approximation, at the best. The small number of subjects in this project, combined with the problems of quantification, emphasizes the need to look at the results with some reservations.

However, the results do support the prediction made in Hypothesis Seven. Further investigation of relationships between an individual's expectations and his performance is recommended.

Hypothesis Eight

Teachers whose scores are below the median on Rokeach's Dogmatism Scale will have more recorded instances of engaging in MOREL program activities than will teachers whose scores are above the median on the dogmatism scale.

Testing Hypothesis Eight

The data used to test Hypothesis Eight are recorded in Table 8.

Table 8

RELATIONSHIPS BETWEEN TEACHERS' DOGMATISM SCORES AND THEIR INVOLVEMENT IN THE MOREL PROGRAM--EIGHT EXPERIMENTAL TEACHERS

	Below Median				Above Median			
Scores on Dogmatism Scale--Pre-test	50	56	59	62	75	81	81	86
Recorded Instances of Involvement	56	43	52	45	39	51	40	43
Scores on Dogmatism Scale--Post-test	53	58	59	62	72	81	92	95
Recorded Instances of Involvement	56	43	45	52	40	43	51	39

The Mann-Whitney U Test was employed in testing Hypothesis Eight. Data used were gathered from the same eight teachers as were the data used in testing Hypothesis Seven. The dogmatism scores from both pre- and post-tests were used in making the comparison between the group above the median on the dogmatism scale with the group below the median with respect to the number of recorded instances of the teachers engaging in MOREL activities. The scores from the pre-test were used first in making the comparison, since the possibility had been considered that the score on this scale might be a predictor of degree of involvement in the program. The difference between the groups approached significance ($\underline{p}$=.057) but did not reach it. The second analysis was then done, using the post-test scores. Again, p was equal to .057. In neither case were there significant differences between the two groups. The results do not support the prediction made in Hypothesis Eight.

Caution in interpreting results is again urged because of the difficulty of accurately quantifying involvement in a program.

Hypothesis Nine

The mean adjusted scores on the Michigan Pupil Attitude Inventory, on the Western Michigan University "Student Opinion Questionnaire," and on the MOREL Student Attitude Inventory will be higher for classes whose teachers participated in the MOREL program than they will be for classes whose teachers did not participate in the program.

Stated symbolically, it becomes: $H_1 9: \bar{X}_E > \bar{X}_C$

$\bar{X}_E$ = the mean adjusted final attitude score of the experimental classes

$\bar{X}_C$ = the mean adjusted final attitude score of the control classes

Testing Hypothesis Nine

Attitude scores gathered on the Michigan Pupil Attitude Inventory were used to test Hypothesis Nine, Part A. Seven of the items, which made up a factor labeled "Anxiety," were not included in the analyses.

Analyses of variance were performed, at both the elementary and junior high school levels, to study relationships between initial attitude scores of the experimental and control groups.

As was expected, the analyses of variance indicated that there was no significant differences between experimental and control classes in initial attitude scores at either the elementary or junior high school level. The results of these analyses are reported in Table 9 and 10.

Table 9

ANALYSIS OF VARIANCE OF INITIAL ATTITUDE:
EXPERIMENTAL CLASSES RELATED TO CONTROL CLASSES--ELEMENTARY

Source of Variation	DF	Sum of Squares	Mean Square	F Ratio	p
Between groups	1	2098.31	2098.31	3.69	N.S.
Within groups	208	118284.64	568.68		
Total	209	120382.96			

$F_{.95}$ (1,209)=3.89
7.78 (two-tailed)

Table 10

ANALYSIS OF VARIANCE OF INITIAL ATTITUDE:
EXPERIMENTAL CLASSES RELATED TO CONTROL CLASSES--JUNIOR HIGH SCHOOL

Source of Variation	DF	Sum of Squares	Mean Square	F Ratio	p
Between groups	1	820.93	820.93	1.29	N.S.
Within groups	153	97555.46	637.62		
Total	154	98376.39			

$F_{.95}$ (1,154)=3.90
7.80 (two-tailed)

In order to compare attitude changes of experimental classes with those of control classes, analyses of covariance were performed, using initial attitude scores to adjust the final attitude scores. The analyses of covariance, computed on the IBM 360, Model 50, and testing the differences between experimental and control classes on final attitude scores, showed differences (at both the elementary and junior high school levels) which could have occurrred by chance fewer than once in a thousand times. The prediction in Hypothesis Nine, Part A, was supported, and it was determined that there was a significant relationship between pupils' attitudes toward their teacher and their teachers' participation in the MOREL program. The analyses of covariance are reported in Tables 11 and 12.

Table 11

ANALYSIS OF COVARIANCE OF FINAL ATTITUDES WITH INITIAL ATTITUDE CONTROLLED: EXPERIMENTAL CLASSES RELATED TO CONTROL CLASSES--ELEMENTARY

Source of Variation	DF	Adjusted Sum Sq	Mean Square	*F* Ratio	*p*
Between groups	1	14851.63	14851.63	39.01	*<.001
Within groups	207	78801.84	380.69		
Total	208	93653.47			

*Significant beyond .001 $F_{.999}(1,208)=11.0$

Table 12

ANALYSIS OF COVARIANCE OF FINAL ATTITUDE WITH INITIAL ATTITUDE CONTROLLED: EXPERIMENTAL CLASSES RELATED TO CONTROL CLASSES--JUNIOR HIGH SCHOOL

Source of Variantion	DF	Adjusted Sum Sq	Mean Square	*F* Ratio	*p*
Between groups	1	4118.74	4118.74	12.89	*<.001
Within groups	152	48561.31	319.48		
Total	153	52680.04			

*Significant beyond .001 $F_{.999}(1,153)=11.1$

Parts B, C, and D of Hypothesis Nine were not tested because there was not sufficient time to organize and process the data.

Hypothesis Ten

The percentage of time devoted to student talk, as computed from Interaction Analysis matrices constructed from coding gathered in classes after the MOREL program has been completed, will be greater in classes whose teachers participated in the MOREL program than in classes whose teachers did not participate in the MOREL program.

Discussion of the testing of this hypothesis will be included with the discussion of the testing of Hypothesis Eleven.

Hypothesis Eleven

The percentage of time devoted to student initiation of ideas (9's), as computed from Interaction Analysis matrices constructed from coding gathered in classes after the MOREL program has been completed, will be greater in classes whose teachers participated in the MOREL program than in classes whose teachers did not participate in the MOREL program.

Testing Hypotheses Ten and Eleven

Data used to determine whether experimental teachers before participation in the MOREL program differed signicantly from the control teachers with respect to percentage of class time devoted to student talk are reported in Table 13. The Mann-Whitney U Test was employed in making the comparison. The two-tailed test was used, since there was no prediction of direction of difference.

Table 13

COMPARISON OF PERCENTAGE OF TIME DEVOTED TO STUDENT TALK (BASELINE DATA) IN CLASS OF *PARTICIPATING AND **NON-PARTICIPATING TEACHERS

Total Student Talk				Student Initiation of Ideas			
*E(Baseline)		**C		*E(Baseline)		**C	
Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
.47	16.5	.18	6	.01	3	.02	5.5
.35	13.5	.73	19	.03	8	.03	8
.28	10.5	.52	18	.17	16	.04	11
.35	13.5	.20	7	.01	3	.07	13
.47	16.5	.13	3	.37	19	.03	8
.17	5	.26	9	.04	11	.01	3
.31	12	.11	2	.04	11	0	1
.23	8	.44	15	.09	15	.36	18
.15	4	.06	1	.08	14	.02	5.5
		.28	10.5			.21	17
$n_1=9$	$R_1=99.5$	$n_2=10$	$R_2=89.5$	$n_1=9$	$R_1=100$	$n_2=10$	$R_2=90$

*Experimental
**Control

Total Student Talk, $U=35.5$, N.S.
Student Initiation of Ideas, $U=35$, N.S.
Since in both cases $U > 24$,
$p > .10$ (two-tailed test)

The differences between the means of both the percentages of total student talk and the percentages of student initiation of ideas in the two groups were not statistically significant.

Data used to compare the two groups with respect to percentages of class time devoted to total student talk and percentages of time devoted to student initiation of ideas upon conclusion of the program are presented in Table 14. The Mann-Whitney U Test was used to make the comparison. The significant values of p lend support to Hypotheses Ten and Eleven, providing evidence that a greater percentage of time was devoted both to total student talk to to student initiation of ideas in the classes of the teacher who had participated in the MOREL program than in classes of the teachers who had not participated in the program. The probability of occurrence $p=.05$ indicates that the difference between percentages of class time devoted to student talk in the classes of participating and non-participating teachers could have occurred by chance only five times in a hundred. The probability of occurrence $p<.025$ indicates that the differences between percentages of class time devoted to student initiation of ideas could have occurred by chance only about twice in a hundred times. It may be assumed that there is a relation between teachers' participation in the MOREL program and the percentage of time in their classes devoted to student talk in general, with even a stronger relationship between participation in the program and percentage of time devoted to student initiation of ideas.

Table 14

COMPARISON OF PERCENTAGE OF TIME DEVOTED TO STUDENT TALK (ENDLINE DATA) OF *PARTICIPATING AND **NON-PARTICIPATING TEACHERS

Total Student Talk				Student Initiation of Ideas			
*E(Endline)		**C		*E(Endline)		**C	
Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
.43	11	.18	4	.18	11	.02	4.5
.24	6	.73	19	0	1.5	.03	6.5
.46	14.5	.52	16	.23	13	.04	8
.32	10	.20	5	.08	10	.07	9
.44	12.5	.13	3	.42	18	.03	6.5
.64	18	.26	7.5	.31	15	.01	3
.46	14.5	.11	2	.38	17	0	1.5
.53	17	.44	12.5	.51	19	.36	16
.26	7.5	.06	1	.25	14	.02	4.5
		.28	9			.21	12
$n_1=9$	$R_1=111$	$n_2=10$	$R_2=79$	$n_1=9$	$R_1=118.5$	$n_2=10$	$R_2=71.5$

*Experimental
**Control

Total Student Talk
$U=24$
$\therefore p=.05$ (one-tailed test)

Student Initiation of Ideas
$U=16.5$
Since, $U<20$, $p<.025$ (one-tailed test)

Summary

The major focus of the MOREL teacher education program has been on helping teachers change their instructional behavior. In order to measure the success of the program, answers to the following questions were sought:

1. Did teachers change in behavior?
2. If so, what parts of the program accounted for the change?

Information used in evaluating the program included views of the teachers, views of the leaders of the Field Action Units, opinions, of pupils, information gathered by systematic behavior observation (employing interaction analysis), and data pertaining to the teachers' knowledge and understanding of skills taught to them during the course of the MOREL program.

Teacher Expectations

At the beginning of the program the participants were asked what they expected to gain from it. The teachers all indicated that they expected to improve their teaching. Some of the specific areas of improvement cited were: acquire new or better methods, techniques, procedures (including awareness of which are best for self); improve teacher-pupil relationships; gain insight into teaching problems; get new ideas about and increased understanding of young people; share ideas and knowledge with others; self-analysis.

At the conclusion of the MOREL program, the teachers were asked to react (in writing) to the program. The unanimous response was that the program had met or exceeded expectations. Specifically, the teachers said that they had been provided tools for self-evaluation--Interaction Analysis for looking at their own behavior and their interaction with students, stating objectives in behavioral terms. They also said that they had become aware of some of the components of a good teaching-learning situation; that they had become aware of the need for clarity and specificity in the statement of objectives; that they had become aware of the value of using students' ideas and encouraging students to participate.

Program Evaluation Interviews

Each of the nine teachers who had participated in the program was also interviewed by a MOREL staff member (not a Field Action Unit leader). The questions asked are found in the Instrumentation Appendix under the title "Program Evaluation Interview."

When asked how beneficial the MOREL program had been for them, six of the teachers responded that it was the finest experience in teacher education they had every had, two rated the program outstanding, and one of them rated it good.

All nine teachers reported having changed their teaching behavior as a result of the program. Four teachers reported that they used students' ideas and reactions more than previously--that their teaching behavior permitted more student participation. Two reported feeling more free in their teaching--free to experiment and more relaxed in their interaction with their students. Two of the teachers mentioned their use of specific behavioral objectives, while one noted his increased use of open questions.

In discussing their attitudinal changes, six of the teachers cited their increased respect for students--for their opinions, their ideas, and their potential. One teacher noted a related behavioral change on his part--increased inclusion of students in planning. Other perceived changes were concerned with teachers' attitudes toward their own behavior--realization of the importance of own behavior in the teaching-learning transaction, eagerness to experiment.

When the teachers were asked to rate the different components of the MOREL program, from six to eight of them rated each of the following as outstanding: Interaction Analysis, student feedback, behavioral objectives, the Field Action Unit leader, teaching skills, learning techniques, using techniques, and audio tapes. All other ratings were outstanding or good, except for one rating of fair for the leader, one for Micro-teaching, and two for video tape. The teachers who felt that the use of video tape was less valuable than other parts of the program gave as a reason the fact that video equipment would not be available after the MOREL equipment was removed from the school.

Eight of the teachers said they thought that successful operation of the MOREL program was dependent upon strong leadership--leadership which was consistent, and which provided guidance and inspiration. Only one teacher thought that the operation of the program could be successful with leadership which was merely adequate.

When the teachers were asked to indicate which part of the program was the most significant, the consensus was that the entire program was significant, with emphasis on the significance of the systematic inquiry process, behavioral objectives, teaching skills, and the interaction of the Field Action Unit members. One person thought that micro-teaching was the least significant part of the program, while three considered video tape the least significant.

All teachers indicated that they would be using the program or some part of it in their classrooms during the coming school year. Six of them indicated that they would also be using it with other members of the staffs within their buildings.

Field Action Unit Leaders' Assessment of Program.

The Field Action Unit leaders, in assessing the impact of the program, listed the successes of the Field Action Units as follows:

1. All the teachers in both FAU's passed all of the tests as outlined in the FAU plan.

2. The teachers in both FAU's were very enthusiastic.

3. The enthusiasm of the teachers led to the formation of two inservice days or half days in which the teachers in the FAU's presented the essence of the program to other staff members within the school. Both inservice days were conducted by FAU members with assistance from the inservice leader.

4. Full participation on the part of members of both FAU's at nearly all FAU meetings provided evidence or interest in the program.

5. Teachers become very supportive of one another as they tried to change their teaching behavior. They coded one another in the classrooms, video-taped one another, and shared video and audio tapes which had been made in their classrooms.

6. At the conclusion of the program, such comments as the following were made by students:

   a. "I like this teacher better."
   b. "This is more enjoyable than it used to be."
   c. "It's fun to be in this class."
   d. "This teacher listens to me."
   e. "This teacher likes me."

7. When teachers were observed, it was noted that they were more versatile in their teaching behaviors than they had been at the beginning of the program. They seemed to have a larger repertoire of teaching behaviors at the conclusion of the program.

8. In both schools, interests in the TBIP spread to other schools and to other school districts as evidenced by the interest of administrators in learning about the program.

9. In the Grand Rapids area school, two of the FAU teachers have now changed the areas of concentration in their Master's programs from the fields of administration and English to the fields of instructional improvement and curriculum development.

10. In both schools, the FAU Leaders perceived the school climate as having improved. There seemed to be closer relationships between not only the teachers in the FAU but also among most of the teachers in the schools. In the elementary school there seemed to be fewer discipline problems.

11. In both school districts administrations have decided to allocate space, time, and (at the Grand Rapids area school) money for continuation of the MOREL program. In fact, in the district where money has been allocated for inservice education, the program will be the Teaching Behavior Improvement Program.

12. Other teachers in both schools have shown interest in the program by asking FAU teachers to come into their classrooms to code them, explain more parts of the program to them, and help them learn some of the techniques of the program.

13. One teacher who was rated by the students as being a very good teacher became more critical of herself, rating herself lower in teaching skills than she, in fact, demonstrated by her action.

14. All teachers are looking more carefully at why they are teaching certain subject matter or particular units in their classes. They have looked closely in terms of behavioral outcomes.

15. In observing the teachers in the MOREL program in action, both FAU leaders noted a more positive attitude toward students and fellow teachers.

16. Administrators saw improvement in the teachers as they observed them teaching, e.g., the students seemed to be paying more attention in class than previously.

17. Principals were invited to observe classes of the teachers more often than they had been previously.

18. The leaders' logs at both schools provided evidence that the teachers, in their classroom conversations, voiced more positive attitudes toward both teaching and students.

19. Teachers appear to be more secure in their teaching after having participated in the program.

There is little on the other side of the ledger. In one of the communities misinformation about the program was circulated. Perhaps more community involvement in planning might prevent this sort of thing.

The experience of the FAU leaders has prompted them to suggest the following improvements:

1. More time was needed to organize a spin-off for the rest of the staff at both of the schools.

2. School people outside the participating schools could be invited into the school to see more of the program in action.

On the whole, both FAU Leaders were pleased with the success of the program. They felt that the program had been vital and meaningful not only to the teachers but also to themselves as leaders.

Content Interviews

An interview was arranged with each teacher for the purpose of collecting from him some data pertaining to his knowledge and understanding of the skills which he was taught during the course of his participation in the MOREL program. The interview schedule covered the following areas--

1. The teacher's ability to suggest methods which can be used to measure whether objectives have been met;

2. The teacher's ability to state objectives in behavioral terms;

3. The teacher's ability to think of several alternative ways to react to a given pupil behavior;

4. The teacher's familiarity with various feedback techniques;

5. The teacher's ability to use Flanders' ten category system;

6. The teacher's future plans with respect to use of feedback techniques learned.

Several questions in the interview dealt with the verbal interaction on an audio tape which was played during the interview and stopped at various points before the person interviewed was asked a question. The content of the tape was a micro-teach which included the reading of a poem by a teacher, followed with a discussion among the teacher and several sixth-grade pupils.

The interview schedule was administered by two members of the MOREL staff. Summaries of the statements of the person being interviewed were recorded by the interviewer. The responses given by the teachers were coded and then grouped according to the following topics:

A. Objectives in behavioral terms
B. Measuring of objectives
C. Alternatives a teacher could take, stated in behavioral terms
D. Feedback techniques
E. Coding
F. Matrix interpretation
G. Additional calculations
H. Continuing use of feedback techniques

Coding the Responses

A. Count number of objectives stated in behavioral terms.
B. Count the number of measuring techniques suggested.
C. Count the number of alternatives which suggest behaviors.
D. Count the number of feedback techniques suggested and explained.
E. If, in coding three minutes of the tape, the teacher is looking at pieces of behavior, recording data in a systematic manner, and if codes have some relationship to behaviors observed, give score of 1, otherwise, give score of 0.
F. If teacher is using numbers in cells and taking advantage of the fact that numbers in the cells represent pairs of tallies, give score of 1, otherwise, give score of 0.
G. Count the number of types of calculations suggested.
H. Plan to continue using feedback techniques--Yes or No. Table 15 contains the results of the coding of the interviews for the nine teachers.

Table 15

CODED RESPONSES TO CONTENT INTERVIEW

Teacher Number	*Topics							
	A	B	C	D	E	F	G	H
6	3	2	3	3	1	1	6	yes
7	5	4	5	4	1	1	10	yes
1	5	0	3	5	1	1	7	yes
4	8	5	5	4	1	1	8	yes
9	7	3	4	3	1	1	7	yes
3	3	0	3	2	1	1	6	yes
2	2	2	2	4	1	0	5	yes
8	9	5	6	11	1	1	10	yes
5	2	1	4	3	1	1	5	yes

*See previous page for descriptions of topics.

It appears, from the data which have been collected, that the teachers who participated in the 1969 MOREL Teaching Behavior Improvement Program are generally strong in their knowledge and understanding of skills to which they were exposed. Two teachers showed weakness in naming measuring techniques, while one had trouble with matrix interpretation. However, all teachers (including the one who did not interpret the matrix adequately) were able to name many different calculations which could be made from the matrix. The teachers appeared to have no problems in stating objectives in behavioral terms. All were able to suggest a number of alternative behaviors a teacher might employ in a given classroom situation, and all were able to suggest feedback techniques which could be used in helping a teacher. The teachers had also retained their coding competency.

The evidence obtained from the content interviews lends support to the Field Action Unit leaders' optimistic appraisal of the impact of the program on the participants. The success of the teachers in demonstrating their knowledge and understanding of the skills practiced during the course of the MOREL program lends credence to their rating of most of the program components as outstanding.

When data gathered on the Teacher Inventory were analyzed, evidence was found that teachers who had participated in the MOREL program had shown a significant positive change in their attitudes toward their pupils. The results of the analysis of the pupils' perceptions of their teachers' behaviors (see analysis of Hypothesis Five) supported the evidence showing teacher attitude change. The pupils saw their teachers becoming more supportive, more effective, giving them more opportunity to participate in class--in short, they saw their teachers as more attractive than they had before the teachers had participated in the program.

Other studies have provided evidence that positive pupil attitudes toward teachers are accompanied by more learning. Flanders[1], studying the influence of teacher behavior on pupil achievement, was also concerned with pupil attitude and found that classes with the more constructive attitudes had higher adjusted achievement scores than did the classes with the less constructive attitudes. Snider[2], studying relationships between pupil achievement and pupils' perceptions of behaviors of their teachers, also found a strong relationship between pupil attitude and achievement, the pupils with the more constructive attitudes achieving more.

The evidence collected in the classroom through the use of Interaction Analysis indicated that teachers had increased their use of reinforcing patterns of teaching and had decreased their use of restrictive patterns. It also indicated that there was an increase in percentage of class time devoted to student talk, with an even greater increase in percentage of time devoted to student initiation of ideas.

Flanders' study mentioned above also provided evidence that the use of reinforcing patterns of teaching, as opposed to restrictive patterns, was accompanied by more learning.

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1. Ned A. Flanders. Teacher Influence, Pupil Attitudes, and Achievement. U. S. Office of Education Cooperative Research Monograph No. 12. Washington: U. S. Government Printing Office, 1965

2. A. Marie Snider. "Some Relationships Between Pupil Growth in Certain Basic Skills and Pupils' Perceptions of Behaviors of Their Teachers." Unpublished doctoral dissertation, University of Michigan, 1965.

A study investigating the relationship between the MOREL Teaching Behavior Improvement Program and pupil achievement would be a valuable contribution to educators concerned with improving teaching effectiveness.

In summary, the evidence is that teachers participating in the MOREL Teaching Behavior Improvement Program did, in fact, change their behaviors. The subjective judgment of trained observers that they did change has been supported by objective data. Upon close examination of the results, it seems clear that no single part of the program can be isolated and pointed out as accounting for these changes in teaching behavior. The evidence seems to be that the total package is desirable--the systematic improvement strategy, the behavioral objectives, teaching skills, technical aids, student feedback, Interaction Analysis, the Field Action Unit, and a well-trained, dedicated teacher.

Appendix A

SUGGESTED AGENDA FOR PRESENTATION TO CHIEF ADMINISTRATORS AND PRINCIPALS

I. The importance of studying and improving classroom teaching behavior.

The leader could make the following points:

A. The teaching behavior of the teacher affects the learning of the students.
B. Teachers generally want to and can become more effective teachers.
C. Direct attention to the teaching act is more likely to produce change than development of new content or materials alone.
D. The majority of teachers can be trained to direct their own improvement efforts.
E. Self-directed change is more likely to produce persisting changes.

II. Description of the Teaching Behavior Improvement Program.

The leader should focus on:

A. The improvement process itself. By using an overlay or printed materials the leader should describe what happens at each step in the process.
B. The three phases of implementation. The leader must make it clear that:
    1. in phase one the teacher is carefully led through the process
    2. in phase two the teacher takes at least half the responsibility for working through the process
    3. in phase three the teacher takes almost total responsibility for working through the process
C. The tools used to implement the process.
The leader should describe each of the tools in the program and ought to consider some depth in explaining some. Perhaps a five minute interaction analysis coding session and/or an interpretation of a simple interaction analysis matrix would be helpful. It is necessary that those present understand that at the end of the program teachers will not only have a workable process for studying and improving their own behavior, but will also be skilled in using the necessary tools.

III. The operational strategy. The leader must explain the Field Action Unit to those present.

He might make comments on the following points.

- A. Teachers meet as a group at least once per week for about two hours.
- B. The leader works with each teacher on an individual basis for at least two hours per week.
- C. The possible make-up of a Field Action Unit.
- D. Size of the Field Action Unit.
- E. Volunteers vs. non-volunteers.
- F. The psychological support needed from administrators.
- G. The financial support needed in the form of (1) payment to teachers, (2) equipment needed and (3) materials needed.

IV. Questions.

The leader should allow ample time for those present to ask questions about the program and discuss next steps in implementation. This, of course, requires that the leader have done some general planning and careful thinking in advance of such a meeting.

Note:

Prior to meeting with administrators or teacher groups, the leader should make a transparency of the MOREL Improvement Strategy found in Chapter III. Such a transparency is extremely useful in explaining the steps in the process and the tools used at each step.

Appendix B

SUGGESTED AGENDA FOR PRESENTATION TO A BUILDING STAFF

I. Description of the Teaching Behavior Improvement Program:

The Leader should focus on:

- A. The inprovement process - an explanation of the purpose of each step along with the teacher activity should be helpful. Printed material or overlays of the improvement process would be helpful.
- B. The three phases of implementation should be described carefully.
- C. The tools used to implement the process:
  The leader should describe each tool and its use in the program and indicate that each teacher who volunteers for the program will have proficiency in using the tools after having experienced the Program. In order to gain more depth in understanding the tools, the presentation could include a short interaction analysis coding session, a general matrix interpretation session and/or a short instructive session on the use of behavioral objectives.

II. The operational strategy.

The leader should explain the nature of a Field Action Unit. The following points could be made.

- A. Although it varies, teachers generally meet as a group for about two hours per week.
- B. The leader works with each teacher on an individual basis for about two hours per week during phase I.
- C. The teaching behavior analysis during phase I is conducted on an individual basis and the group meetings focus on learning to use the tools.
- D. Teachers are expected to take increasing responsibility for their own improvement as the program progresses.
- E. Size of the Field Action Unit.
- F. The make-up of a Field Action Unit regarding volunteers vs. non-volunteers subject matter homogeneity and grade level homogeneity.
- G. The fact that the data gathered on any teacher is condifential and would be shared with an administrator if the teacher shared it.
- H. The financial support, college credit etc. available for teachers who participate if such is possible.

III. Self-Renewal.

The leader should emphasize the meaning of the idea of self-renewal in the program and that his role is to assist teachers to learn a means whereby they can conduct their own improvement without his leadership.

IV. Questions.

The leader must allow plenty of time for teachers to ask questions about the program and participate in it. The teachers should be left with the idea that the decision to participate in this and who they should contact if they wish to participate.

Note:

Prior to meeting with administrators or teacher groups, the leader should make a transparency of the MOREL Improvement Strategy found in Chapter III. Such a transparency is extremely useful in explaining the steps in the process and the tools used at each step.

Appendix C

PERSONNEL AND EQUIPMENT COSTS

TEACHING BEHAVIOR IMPROVEMENT PROGRAM

The following cost figures are based on one inservice leader working half-time with three groups (Field Action Units) during the course of one school year. The salary costs vary across districts and therefore those costs may increase or decrease the cost in your school district.

1. Leader (1/2 time)	$7,000.00
2. Teachers (three Field Action Units of five teachers-each operated three months during the school year. Four hours per week per teacher at $5.00 per hour)	$2,600.00
3. Video tape equipment Cost for total setup - least expensive models	
1/2 inch models	$1,700.00 - $1,900.00
1 inch models	$3,000.00 - $3,200.00
4. Audio tape recorder Cassette recorder with non-directional microphones - 2 at $120.00 each	$240.00
5. Video tapes	
10 at $60.00 for one-inch	$600.00
10 at $30.00 for half-inch	$300.00
6. Audio tapes 10 hours for each teacher at $1.50 per tape	$225.00
7. Books - $16.00 per teacher and leader	$156.00
8. Materials - paper reproduction etc. $10.00 per teacher and leader	$160.00
9. Students for micro-teaching (approximately 150 hours at $1.00 per hour)	$150.00

Other items needed include a movie projector, filmstrip projector, overhead projector, storage and file cabients but since these are normally found in schools, they are not included here. Another cost that does not appear is insurance to cover the equipment.

Appendix D

TEACHER BEHAVIOR AND STUDENT LEARNING

by Delmo Della-Dora

Why should teachers want to examine their teaching behavior? How will this contribute to improved teaching and increased learning? Let's look to what a few selected studies have shown to date in answering these questions.

There is a relationship between certain patterns of teaching behavior and what students learn. Research evidence isn't available yet to enable prediction that a particular set of practices will likely produce a given result with students. However, some generally positive relationships can be described which are useful for the teachers interested in self-improvement. There are also some teacher behaviors which are related to negative effects on student learning, often in ways unintended by, unanticipated by, or unknown to the teacher.

Another complicating factor in looking at teacher impact on students is that a teacher with the same (consistent) behavior may produce different results with different types of students. Certain teachers seem to work well with one age group or grade level but not others, or with certain subject fields, or with boys, or with inner city children, or with retarded children etc. The important point is that there is no one "package" that can be wrapped up and labeled "good teacher." So the purposes of MOREL in examining teacher behaviors are not to find "ideal" teacher behaviors but to help teachers to: (1) become more aware of what they actually do as they work with students; (2) discover for themselves the effects of their behavior on student learning; (3) find ways to develop some new approaches, new behaviors, which will be more effective in attaining their own goals; (4) and learn the use of various techniques which will be helpful in one's continuing analysis of his teaching behavior.

In this process of self-examination, self-evaluation and self-directed change it is essential to go beyond superficial evidence and global impressions about classroom activities. For example, the major criteria commonly used to evaluate teachers or that teachers use to evaluate themselves can be described as follows:

(1) "The classroom is orderly and the children seem attentive and interested."

(2) "The teacher had a lesson plan and followed it."

(3) "The teacher knows his subject matter well."

Many, if not most, teachers, supervisors and administrators are content if there is an absence of discipline problems and parental complaints, if teachers conform in grooming and general behavior to community norms and if students, parents and other teachers feel he has sufficient knowledge of the subject fields he is supposed to teach. As has been indicated previously these kinds of data are inadequate, by themselves, as the basis for a program of professional growth for any teacher. What kinds of data are needed then? The following descriptions touch on a few selected behaviors which are either not generally used or not generally known in analyzing the improvement of teaching.

Teacher Expectations

There is evidence that what a teacher expects to happen with individual students or with a class tends to come true. Rosenthal and Jacobson(1)* reported a study in which teachers were told to expect gains in I.Q. from specified children by psychologists who had selected the students at random, that is, had figuratively "picked their names out of a hat". Not only did the teachers perceive the children as growing more intellectually, the students actually did make significant spurts in I.Q. measures! An interesting contrast is that many other children had also gained in I.Q. during the year but"...the more they gained, the less favorably they were rated"(1). In sum teachers were told certain students would gain in I.Q. They believed it would happen, they perceived it as happening and it did happen. The teachers were pleased. Other students were not expected to show an increase in I.Q. but they did anyway and teachers found their behavior undesirable (unexpected?). After examination of possible causes, the authors conclude that"...the explanation we are seeking seems to be in a subtler feature of the interaction of the teacher and her pupils. Her tone of voice, facial expression, touch and posture may be the means by which - probably quite unwittingly - she communicates her expectations to the pupils. Such communication might help the child by changing his concept of himself, his anticipation of his own behavior, his motivation or his cognitive skills. This is an area in which further research is needed".

Does this research help explain why children from the inner city do less well academically as a group than students in other locations? Expectations are often different and usually lower for such students. However, the findings may have application to all teachers and all students. Whatever the case, teacher behavior and student learning do seem to be related to teacher expectations. One question for each teacher to ask himself is what he really expects to happen with each student and each class he faces. Does he know? If not, does he know how to find out? Does he know what effect his expectations are having on his students?

Verbal Interaction

The work of Ned Flanders and others demonstrate a relationship between certain patterns of "teacher talk" and student learning. This is treated in a detailed fashion in other publications (2) but several generalizations might be useful to illustrate this aspect of teacher behavior.

Teachers who interact verbally with students in an "indirect" manner tend to have classrooms in which"...students learned more and possessed more constructive and independent attitudes..." than in "direct" classrooms,

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*References cited are listed at the conclusion of the article.

Also"... the most direct teachers had more discipline problems..." and "Students more often tended to question or even resist the directions given by the most direct teachers".

In these studies, "direct" teachers are those whose statements tend to restrict freedom of participation. Indirect teachers were"...more alert to, concerned with, and made greater use of statements made by students. These teachers went beyond mere clarification and acknowledgement of student ideas; they skillfully integrated student ideas into the content discourse of classroom communication...".

Flanders has developed an interaction analysis model which is relatively simple to learn to use. It can be used by an outside observer and/or by the teacher himself viewing a video tape of his teaching. Teachers are usually surprised and enlightened when they view themselves on TV and/or see the results of an analysis of their verbal interaction with students using Flanders' observation chart. Teacher perception of his teaching act and behaviors while he is in the midst of it is often different than his perception of it as a spectator of a kinescope afterward, particularly if he employs some kind of rational model to examine it with.

Creativity

Certain kinds of teacher behavior foster ingenuity, originality, independent thinking, spontaneity, use of imagination and other qualities associated with creativity. Torrance outlines principles of teacher behavior that foster creative growth in Rewarding Creative Behavior and other publications(3). In a series of experiments he was able to help teachers learn how to identify various kinds of creative expressions in both academic and non-academic areas and to use behaviors which would "reward" creative behavior.

His work and that of others in the field of creativity show that creativity is more often inhibited than fostered in most classrooms but that awareness of one's own behavior as a teacher as it affects creative expression can lead to improvement in creative output in the classroom with little additional inservice education. Again self-analysis and self-evaluation led to changes in teacher behavior which caused significant changes in student learning. If the teacher's goals include fostering creativity in any aspect of school work, the means for doing so are readily at hand.

Other Data Concerning Teacher Behavior and Student Learning

Various studies show unintended and, occasionally, unwanted effects on learning.

For example:

(1) If teachers are neurotic, they can generate their neurotic symptoms among students in early elementary school grades.(4)

(2) Students' estimate of their self-worth, their self-esteem and general self-concept can be changed by certain teacher behaviors. The self-concept is related to achievement in school and attitude toward teachers and toward learning.

(3) Assignment of marks is sometimes related to sex. Girls tend to be marked higher and shown more positive attitudes by teachers of both sexes. Is there a relationship between this factor and higher dropout rates from school for boys?

(4) Some studies show knowledge about individual students by teachers is significantly related to social class. Teachers know less about students from the "poorest" (socio-economic) families.(5)

(5) When teacher behavior focuses on the causes of events and the causes of human behavior in treatement of subject matter, students learn as much or more subject matter and also learn more about themselves. Ojemann and others have taught specific classroom techniques for teachers to use in their "causal" or "preventive psychiatric" approach, which has produced significant results in learning and improved mental health.(6)

Widely Used Practices Which Produce No Change in Learning

The foregoing have illustrated that certain teacher behaivors can and do influence specific student learnings. There is also a kind of backhanded reinforcement for this generalization when we consider the results of research on grouping practices and class size.

The research on grouping practices shows no significant or consistent pattern of change in learning when ability grouping is used(7). Gifted students do not learn more in special classes nor do slow-learners, contrary to popular belief and general practice. There is no evidence of improved learning when class size is reduced either, which runs contrary to strong belief. However, the evidence is based on what does happen rather than what could happen because the studies also indicate that teacher behaviors were generally the same regardless of type of group or size of class. If teacher behavior is no different with a small group than with a large group should we realistically expect a difference in learning? The same could be asked when students of widely varying ability are togehter in a classroom compared with a classroom where there is less difference in the range of abilities. There is no special magic that automatically accrues as a result of being in smaller group or with those of similar ability. The teacher must behave differently as a result of reduction in class size or class composition if changes in learning are to result.

Summary

Changes in teacher behavior can create improvement in academic learning, self-concept, creativity and other areas of learning. In order for these improvements to take place:

(1) The teacher must want to examine his own behaviors and their impact on student learning.

(2) He must have the opportunity to carry out self-examination and obtain knowledge of techniques for doing so.

(3) He will have to identify and/or clarify and specify what he wants to accomplish (goals) with students.

(4) He needs time and knowledge of skills necessary for self-evaluation based on self-examination and identification of goals.

(5) He needs time and assistance in developing new behaviors which will lead to improved attainment of goals and, from time to time, in developing new goals.

References

(1) Rosenthal, R. and Jacobson, L. Pygmalion in the Classroom: Teacher Expectations and Pupil Intellectual Ability. New York: Holt, 1968.

(2) Flanders, Ned A. "Some Relationships Among Teacher Influence, Pupil Attitudes and Achievement" in Biddle and Ellena(Ed.) Contemporary Research on Teacher Effectiveness. New York: Holt, Rinehart & Winston. 1964 p. 196-232.

(3) Torrance, E. Paul, Rewarding Creative Behavior. Englewood Cliff, N.J.: Prentice-Hall, 1965.

(4) Anderson, H.H. and Read, Mary F. "Studies of Teachers' Classroom Personalities. III: Follow-Up Studies of the Effects of Dominative and Integrative Contacts on Children's Behavior." Psychological Monographs II; 1946.

(5) Hollingshead, A.B. Elmtown's Youth. New York: John Wiley & Sons, 1949.

(6) Ojemann,Ralph H. Series of publications designed to develop "causal teaching" or "preventive psychiatric approach" available from Iowa Child Welfare Research Station, State University of Iowa, Iowa City.

(7) Della-Dora, D. One Hundred Years of Grouping Practices. Detroit: Wayne County Board of Education, 1961.

Appendix E

INTERACTION ANALYSIS

Introduction

It is intended that this apprendix provide the inservice leader with sufficient material to understand and effectively use Interaction Analysis in implementing the Teaching Behavior Improvement Program. The leader who desires greater depth in the use of Interaction Analysis will want to seek other sources for additional data. Other sources are listed at the end of this appendix section.

The contents of this section are as follows:

1. Flanders' Interaction Analysis Categories
2. Procedures for teaching Interaction Analysis
3. Ground rules for Interaction Analysis coding
4. Interaction Analysis coding form
5. Procedures for building a matrix
6. Codes for matrix building practice
7. Criterion matrix
8. Procedures for teaching matrix interpretation
9. Test for matrix interpretation
10. Answers for test on matrix interpretation
11. Matrix interpretation sample test
12. Classroom simulation for I.A. coding practice #1
13. Classroom simulation for I.A. coding practice #2
14. Classroom simulation for I.A. coding practice #3
15. Determining coder accuracy
16. An Estimate of the Accuracy (Objectivity) of Nominal Category Coding
17. I.A. code matching tally sheet
18. Subscripting Flanders' Interaction Analysis categories

Flanders' Interaction Analysis Categories[1]

The Categories: There are ten categories in the system. Seven are assigned to teacher talk and two to student talk. The tenth category classifies pauses, short periods of silence and talk that is confusing or noisy. The category system is outlined at the end of this section.

The seven categories assigned to teacher talk are divided into indirect and direct influence. Categories one through four represent indirect influence, categories five, six and seven represent direct influence.

Indirect influence encourages student participation and thereby increases his freedom of action. To ask a question, category four, is an invitation to participate and express ideas, opinions, or facts.

It is true that a question can leave very little freedom of action but at least the student can refuse to answer, which involves more freedom than passive listening. The more general a question, the greater the opportunity to assert one's own ideas.

In category three, the teacher accepts, clarifies, or uses constructively the ideas and opinions of students. The students are rewarded and encouraged to further participation. Often teachers ignore what a student says; to acknowledge and make use of an idea is a powerful form of recognition.

To praise or encourage student participation, category two, is to solicit even more participation.

The ability to use the feeling tone of a student constructively, to react to feeling and clarify it, category one, is a rare skill. Teachers with this skill can often mobilize positive feelings in motivation and successfully control negative feelings that might otherwise get out of hand.

All of these actions tend to increase student participation, to reward student participation, and to give students the opportunity to become more influential. The net effect is greater freedom of action for the students.

Direct influence increases the active control of the teacher and often stimulates conformity and compliance. To lecture, category five, focuses the attention of the students on ideas chosen by the teacher. To give directions or commands, category six, is to direct the activities of the class with the intent of obtaining compliance.

Category seven refers to criticizing student behavior or justifying the teacher's use of authority. These actions concentrate authority in the hands of the teacher.

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1. Edmund J. Amidon and Ned A. Flanders. The Role of the Teacher in the Classroom. Minneapolis: Association for Productive Teaching, 1967.

Direct influence tends to increase teacher participation and establish restraints to student behavior. The ensuing restriction of freedom may occur in terms of compliance to the teacher or be an adjustment to the requirements of problem solving activities. The net effect is less freedom of action for the students.

Of and by itself, neither direct nor indirect influence can be considered good or bad. Each type of influence has its place in the classroom.

The division of student talk into categories eight and nine provides an automatic check on freedom of student action within the system of categories. Usually, but not always, an excessive or above average pattern of direct teacher influence is associated with less student talk and the talk that does occur is usually in response to the teacher--category eight. An above average indirect pattern is usually associated with more student talk and this talk will have a higher proportion of self-initiated talk--category nine.

The use of only two categories to record all kinds of student talk neglects a great deal of information, but the major purpose of these categories is the analysis of teacher influence. The greatest information will accrue from observation if category nine is used sparingly and only on those occasions when the communication is truly student initiated.

For example, a student answering the specific question of a teacher, giving the answer to a problem, or reading material is obviously category eight. Even a student giving an oral report is restricted to an outline and except for unusual circumstances is probably responding to teacher supported restraints.

Category nine should be used to indicate the expression of the student's own ideas in spontaneous interaction. General questions are often a clue that a student may be initiating his own ideas. Wh n a teacher calls on a student who voluntarily raised his hand to speak and asks, "Have you anything to add, Robert?", the chances are that the use of category nine is correct.

The purpose of category ten is to record pauses, silences and periods of confusion as they occur during classroom interaction. It is not intended to record longer periods of silence or confusion, for example, those that are more than two minutes. The continuous use of this category for long periods of silence serves no useful purpose.

Categories for Interaction Analysis*

TEACHER TALK	INDIRECT INFLUENCE	1.* ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nong reatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.
		2.* PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying, "um hm?" or "go on" are included.
		3.* ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As a teacher brings more of his own ideas into play, shift to category five.
		4.* ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5.* LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions.
		6.* GIVING DIRECTIONS: directions, commnads, or orders to which a student is expected to comply.
		7.* CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8.* STUDENT TALK--RESPONSE: a student makes a predictable response to teacher. Teacher initiates the contact or solicits student statement and sets limits to what the student says.
		9.* STUDENT TALK--INITIATION: talk by students which they initiate. Unpredictable statements in response to teacher. Shift from 8 to 9 as student introduces own ideas.
		10.* SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

* There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate--not to judge a position on a scale.

Procedures for Teaching Interaction Analysis

I. Learn the ten I.A. categories.
   a. Role-play the categories by assuming alternately the roles of student and teacher.
   b. Write codes for verbal examples given by the FAU leader or other FAU members.
   c. Write examples of statements that would characterize each of the ten categories and discuss those statements.

II. Code from the training tape.*
   a. Compare the codes, individually, for discrepancies (the exercises are short enough to allow this).
   b. Re-play training tape and discuss any discrepancies between the teachers' codes, and the codes in the training manual.
   c. Check to see that 3 second intervals between codes is being observed.
   d. Correct mistakes after deciding which codes are appropriate.

III. Code from criteria tape for percent of accuracy.
   a. Listen to tape. write codes and make a slash mark when the bell on the tape is sounded. (12 second intervals).
   b. Compute the accuracy of the coders. See "An Estimate of the Accuracy (Objectivity) of Human Judgement in Nominal Category Coding."
   c. Criteria tapes #2 and #3 would be used if the desired level of accuracy is not achieved with criteria tape #1 (Scripts for the three simulated exercises are enclosed).

Ground Rules for IA Coding[2]

Rule No. 1

When not certain to which of two or more categories a statement belongs, choose the category that is numerically farthest from Category 5. This is advisable except when one of the two categories in doubt is Category 10, which is never chosen if there is an alternate category under consideration.

Rule No. 2

If the primary tone of the teacher's behavior has been consistently direct or consistently indirect, do not shift into the opposite classification unless a clear indication of shift is given by the teacher. The trained observer who is observing a particular action is in the best position to judge whether or not the teacher is restricting or expanding the freedom of action of class members.

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*See source materials.

[2] *Ibid.* (rules 1 through 15)

Rule No. 3

The observer must not be concerned with his own biases or with the teacher's intent. Rather, he must ask himself the question, "What does this behavior mean to the pupils so far as restriction or expansion of their freedom is concerned?"

Rule No. 4

If more than one category occurs during the three-second interval, then all categories used in that interval are recorded; thus, record each change in the category. If no change occurs within three seconds, repeat the previous category number.

Rule No. 5

Directions (Category 6) are statements that result (or are expected to result) in observable behavior of children. Examples of direction are: "Go to the board, read question 3, go to your seat, etc." Some teacher statements sound like directions, but will not be followed by observed student compliance. These statements often precede the actual direction. For example, "Let's get ready now to go to recess(orientation a 5) now, Row 5, get your coats."

Rule No. 6

When the teacher calls on a child by name, the observer ordinarily records a 4.

Rule No. 7

If there is a discernible period of silence (at least 3 seconds), record one 10 for every three seconds of silence, laughter, board work, etc.

Rule No. 8

When the teacher repeats a student answer, and the answer is a correct answer, this is recorded a 2. This tells the student he has the right answer and therefore functions as praise.

Rule No. 9

When the teacher repeats a student idea and communicates only that the ideas will be considered or accepted as something to be discussed, a 3 is used.

Rule No. 10

If a student begins talking after another student (without the teacher's talking), a 10 is inserted between the 9's or 8's to indicate the change of student.

Rule No. 11

Statements such as "uh, uh, yes, yea, all right, okay," which occur between two 9's, are recorded as 2 (encouragement). These statements function as encouragement)the student continues talking after the 2) and are therefore classified as 2.

Rule No. 12

A teacher joke, which is not made at the expense of the children, is a 2. If the joke makes fun of a child, then it is coded as a 7.

Rule No. 13

Rhetorical questions are not really questions; they are merely part of lecturing techniques and should be categorized as 5's.

Rule No. 14

A narrow question is a signal to expect an 8. If the student gives a specific predictable answer, this is an 8. If the child expands, documents, or justifies his answer, the observer should begin tallying 9's.

Rule No. 15

When the class members respond to a question or direction in unison with a single discernible response, an 8 rather than a 10 is recorded.

Rule No. 16

Do not code verbal tics - good, fine - as praise (category 2) unless they are perceived by students as same.

Rule No. 17

Yes and no teacher responses are coded in Category 5.

Rule No. 18

Teacher repetition after a student's request is coded in Category 6.

Rule No. 19

Student chorus responses are coded in Category 8 and indicated as 8+.

Rule No. 20

Yes and no student responses are coded in category 8.

Rule No. 21

Keep margin notes if at all possible.

Sample IA Coding Form

1. ______
2. ______
3. ______
4. ______
5. ______
6. ______
7. ______
8. ______
9. ______
10. ______
11. ______
12. ______
13. ______
14. ______
15. ______
16. ______
17. ______
18. ______
19. ______
20. ______
21. ______
22. ______

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20. ______
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10. ______
11. ______
12. ______
13. ______
14. ______
15. ______
16. ______
17. ______
18. ______
19. ______
20. ______
21. ______
22. ______

Procedures for Building a Matrix

A. Learn the process of coupling the codes to put them in a matrix.

Example:
10)
(5)
5)
(4
8)
3

B. The first code of each couple is entered in the row of that number and the second code is entered in the column. The second code then becomes the first code of the next couple etc. until all codes are entered in the matrix.

Example: The above six codes constitute five couples or pairs. The 10-5 is first entered into the 10-5 cell of the matrix; next enter 5-5, 5-4, 4-8, 8-3.

Second Number (effect)

First Number (cause)

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4								4th		
5				3rd	2nd					
6										
7										
8			5th							
9										
10					1st					

C. Build a matrix form and practice matrix building by entering the below coded sequence in a matrix. This sequence can also be used for matrix interpretation practice. This sequence is properly entered in the criterion matrix on the following page.

Codes for Matrix Building Practice

2 2 2 5 5 9 5 5 5 4 6 8 0 6 4 8 2 5 5 5 5 5 5 5 5 5 4 4 8 4 4 8 5 5 4
2 2 5 5 5 4 5 5 5 5 5 4 6 6 0 5 5 4 4 2 2 5 4 8 7 7 4 4 9 9 0 5 5 5 5
5 5 9 9 5 5 5 5 5 5 5 5 5 4 8 8 8 7 7 7 0 0 5 5 5 5 5 5 5 5 5 5 5 5 5
5 5 5 5 5 5 5 5 8 5 5 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 5 5 2 2
8 8 8 8 8 0 8 8 5 5 5 5 5 5 5 6 6 6 9 9 5 5 6 6 6 6 6 6 6 6 6 6 9 9 9
9 5 5 5 5 5 5 5 5 5 9 5 5 5 5 5 5 5 5 6 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5
5 5 5 5 5 5 5 5 5 0 0 0 0 0 0 9 4 5 5 2 2 5 5 5 9 9 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 4 5 5 8 5 5 5 8 5 5 0 0 0

Criterion Matrix

	1	2	3	4	5	6	7	8	9	10
1										
2		6			5			1		
3										
4		2		4	3	2		6	1	
5		2		9	100	3		3	4	2
6				1	1	13		1	2	1
7				1			3			1
8		1		1	6		2	24		2
9				1	5				7	2
10				1	3	1		1	1	28
TOTAL	0	11	0	18	123	19	5	36	15	36
% G.T.	0	4.2%	0	6.8	46.7	7.2	1.9	13.6	5.7	13.6
% T.T.	0	6.2	0	10.2	69.8	10.7	2.8			

G.T. = 263
T.T. = 176

Procedures For Teaching Matrix Interpretation

A. Identify cells that indicate content, direct influence, indirect influence, student initiated responses, etc.

B. Discuss charts and overlays on matrix interpretation.

C. Practice in interpreting matrices from IA Training Tape Level I.

D. Give matrix interpretation sample test.

Test for Matrix Interpretation

A. Short Answer
  1. Which teacher talk categories extend indirect influence?
  2. Which teacher talk categories extend direct influence?
  3. What is meant by the following terms:
    A. Content Cross
    B. Steady State Cells.
  4. What is meant by the term I/D Ratio?
  5. What is meant by the term Revised I/D Ratio?
  6. What is Flanders' 2/3 Rule?
  7. What is the definition of a matrix?
  8. What is meant by transition cells?
  9. What category does the average teacher spend most time in?

B. True or False
  1. Category 10 is used for confusion or silence.
  2. The 4-8 cell would have a greater percentage in an indirect teacher's matrix than a direct teacher's matrix.
  3. Category 1 is rarely used.
  4. Matrices should be interpreted only with knowledge of the teacher's objective for that lesson.
  5. Rows run vertically and columns run horizontally.

Answers for Test on Matrix Interpretation

A.
  1. Categories 1, 2, 3, and 4.
  2. Categories 5, 6, and 7.
  3. a. The Content Cross contains all tallies in the questioning category (4) and the lecture category (5) columns and rows. A heavy concentration of tallies indicates an emphasis on content.

4. The I/D Ratio indicates emphasis given to indirect statements and direct statements in the classroom. Categories (1-4) ÷ (1-4) plus (5-7) = I/D Ratio.
5. The Revised I/D Ratio gives emphasis to motivation and control in a classroom and is less concerned with actual presentation and subject matter.
6. Flanders 2/3 Rule states that in the average classroom someone is talking two thirds of the time. Two thirds of the time the person who is talking is the teacher. Two thirds of the time the teacher is talking by using direct influence.
7. A matrix is a 10 by 10 grid used to systematically interpret coding data.
8. Transition Cells are all cells where categories cross the opposite of Steady State Cells.
9. Category 5.

B.

1. True 2. False 3. True 4. True 5. False

Answer the Following Questions Using the Matrix on Following Page:

C.

1. What was the general pattern of the class? (code numbers)
2. Using Flanders 2/3 Rule decide whether this teacher is above or below the rule.
3. What cells would indicate how praise is used in a classroom? What are the percentages of these cells in this matrix?
4. What amount of student talk is student initiated?
5. What cells indicate the vicious circle? What percentage are in each of these cells?
6. What does the teacher do after an open response?
7. What does the teacher do after a closed response?

Answers

C. 1. 5-4-4 or 5-4-6-8 pattern.
2. Slightly below the rule that the teacher is talking 2/3 of the time. Above the rule the teacher is direct 2/3 of the time while talking.
3. 4-2 = 0.0%
5-2 = 0.7%
6-2 = 0.0%
2-3 = 0.0%
8-2 = 0.9%
9-2 = 0.2%
4. 3.9%
5. Cells 6-6 = 1.3% 7-7 - 0.4% 6-10 = 0.2%
6-7 = 0.2% 7-6 = 0.0% 7-10 = 0.2%
6. Cells 9-1 = 0.0% 9-5 - 1.3%
9-2 = 0.2% 9-6 = 0.0%
9-3 = 0.7% 9-7 - 0.0%
9-4 = 0.2%

Matrix Interpretation Sample Test

	1	2	3	4	5	6	7	8	9	10
1	2				1			1		1
2		2		3	5				1	
3			1		6			1		
4	1			16	1	8	1	25	2	2
5		3		16	93	6	1	3	4	3
6				2	1	6	1	14		1
7					2		2	0		1
8	2	4	4	15	13	5		27	2	3
9		1	3	1	6				7	
10		1		3	1			5	2	117
TOTAL	5	11	8	56	129	25	5	76	18	128
% G.T.	1.1	2.4	1.7	12.1	28.0	5.4	1.1	16.5	3.9	27.8
% T.T.	2.0	4.6	3.3	23.4	53.9	10.4	2.0			

G.T. = 461
T.T. = 239

7. 8-1 = 0.4% 8-5 = 2.8%
8-2 - 0.9% 8-6 = 1.1%
8-3 = 0.9% 8-7 = 0.0%
8-4 = 3.3%

Criteria Tapes for IA Coding

The scripts on the following pages can be used to create a simulated classroom teaching experience for coding. The FAU leader should decide, before hand, the codes for each statment. When taped, these vignettes will serve as criteria tests for coding.

Classroom Simulation for I.A. Coding Practice - #1

Scene: Mr. Reid's high school class is going to review for a test. Mr. Reid speaks first.

Mr. Reid: Good morning everyone. Welcome to another blue Monday. (pause) I can see how you feel. The Monday morning blahs! Right?

Students: (in unison) Yeah, you better believe it.

George: Mondays ought to be outlawed.

Mr. Reid: I couldn't agree with you more George. But if we didn't have today's class session we wouldn't have a chance to review for tomorrow's test.

Silence: (Student talking in undertone) Yeah, test tomorrow. My God! Big deal!

Mr. Ried: O. K. put your books away and give me your attention. In our discussion review if any questions you have are unanswered be sure you get them answered before this class session is over.

Jane: Mr. Reid. Mr. Reid I have a question.

Mr. Reid: Yes, Jane, go ahead, ask your question.

Jane: Are there going to be essay questions on this exam? I don't like those kind! Give us more true and false ones will ya?

Fred: Yeah, those essay questions are too hard. I never get them right. They aren't fair.

Class: (all talking at once) You better believe it. No more essay questions. (everybody starts talking to everyone else) They aren't any good. Who needs them?

Mr. Reid: Quiet down please. I believe I know how to write a test. If I didn't think essay questions were important I wouldn't give them to you.

Fred: Yeah, but you don't have to answer them.

Mr. Reid: Fred, if you have something to contribute, raise your hand and wait to be called on.

Fred: But Mr. Reid you don't know how hard they are!

Jane: He is right Mr. Reid, they're murder.

Class: (in unison) You better believe they're murder. No more essay questions. Terrible! Terrible!

Mr. Reid: O.K. quiet down. I understand how you feel, but nevertheless I believe essay questions are important. Let's discuss it. Maybe we can work out a solution. I'm willing to be reasonable. Exactly what is so hard about the essay questions I ask?

Bob: I never know what to write. I can't figure out what kind of an answer you want. I seem to end up thinking along one line, and you expect a different answer. At least that's the way it seems to me.

Mr. Reid: I see. Is that how you feel too, George?

George: Well, Mr. Reid, I guess that sums it up pretty well.

Mr. Reid: Let me see if I understand what your're saying. Essay questions are too hard and you would prefer true and false questions? Is that correct?

Class: Yeh, you bet! Amen! You better believe it! Right down the line.

Mr. Reid: I see. Let me explain why I have given you essay questions. Some knowledge can't be answered by just a yes or a no, a true or a false answer. I want to see how you put the ideas you've learned together. I don't just want facts, I want to see your thinking, your reasoning.

George: I understand that Mr. Reid, but your essay questions are too vague. If only they could be a little more specific, so we would be on the right track in our answers.

Mr. Reid: Thanks George. That is a worthwhile suggestion. An essay question does need to be specific enough so you know what to write about. As I think back on the questions I've asked and the different answers I've gotten from this class, you may be right. The questions have been too vague. If I spelled out more in the question what was expected, would this be helpful?

Fred: Yeah, if you don't make them too hard.

Jane: Mr. Reid, why don't you ask us some of those specific essay questions in our review and see if we can understand them?

Mr. Reid: Good suggestion Jane! You would have a better feel for the type of question I might ask and I'll know whether my questions are specific enough. Shall we give it a try, class?

Class: Yeh! Why not! O.K.! I like that idea.

Mr. Reid: Any other suggestions or comments?

Bob: I feel we shouldn't have just essay or true and false questions. We ought to have both and maybe some multiple choice ones too.

Mr. Reid: I understand how you feel Bob. If you can't do one kind of question you still get a crack at a different kind. Let me see what I can do.

Jane: Let's move on, Mr. Reid, I'm afraid we won't have time to review all the materials and I won't know what to prepare for.

Mr. Reid: I'm concerned too, Jane, Maybe we will have to wait another day before we have the test so we will have time to review all of the material. Thanks for moving us along Jane. O.K. class you had better keep paper and pencil handy. Take notes, it will help you when you study for the test.

Classroom Simulation for IA Coding Practice - #2

Scene: A social studies classroom. A discussion between Mr. Lincoln and his students is taking place. Mr. Lincoln speaks first.

Mr. Lincoln: We've been talking about the importance of farming in man's development. Who can mention some of the things we have learned?

(Silence)

Mr. Lincoln: Bill, can you remember a couple of the things we've studied?

Bill: I don't know, I don't like farming.

Mr. Lincoln: Well, I guess quite a few other people feel the same way now Bill, especially since people have been leaving the farms to move to our cities. But we'd be in a heck of a fix without someone to grow food for us. Maybe Barbara can help us by recalling a few things we've studied?

Barbara: Well, if people don't know how to grow their own food, they have to wander around and find things to eat. They can't stay too long in one place.

Bill: Yeah, Barb, those people are called nomads.

John: Yeah, there are still nomads in some countries throughout the world.

Mr. Lincoln: Very good Bill, John, and Barb. Anything else class?

Harry: It takes a lot of land for not too many people, because they keep picking berries and things, and they don't plant anything else. So there couldn't be too many people in those days, because there wasn't enough to eat.

Mr. Lincoln: Good idea, Harry. Now, today, we're going to read some material about the development of one of the most important tools that farmers use - a tool that helps in planting. (pause) Gene would you please stop distracting Bill and pay attention to the discussion. Gene, I'm talking to you! Turn around! Now back to our discussion. Does anyone have any ideas what tool that might be?

Bill: A shovel.

Barbara: A plow.

John: A rake.

Mr. Lincoln: Right you are. Now please read the next two paragraphs silently.

(Silence while students are reading)

Mr. Lincoln: (Silently)

Mr. Lincoln: O.K. your attention please. Approximately how long ago is the time mentioned in those two paragraphs?

Harry: About two thousand years ago. Maybe that isn't the exact time. I think man probably used plows even before that from what I've read about early man. No one can be exactly sure of the correct time they started to use a plow.

Mr. Lincoln: That's a good contribution Harry. You know with some more reading in other books in the library we might be able to get a closer approximation of the first time man used a plow.

Barbara: I'd like to look that answer up, Mr. Lincoln. I'm interested.

Mr. Lincoln: Fine, Barbara. I think the class would appreciate having that information. Read the next two paragraphs silently please.

(Silence while students are reading)

Mr. Lincoln: All right class. Look at the picture of a stick plow. Do you think you could make one?

Bill: Sure.

John: You bet.

Gene: All you'd have to do is find a stick like that and make the tip sharp with a knife.

Mr. Lincoln: That is one way of doing it, Gene. What if you lived in the says when there were no knives?

Gene: You could use a rock.

Mr. Lincoln: Good thinking, Gene. Undoubtedly that's how stick plows were made. How do you think this plow was used, exactly?

John: The person probably took hold of the long end there, and then dragged the pointed tip through the ground.

Harry: Before men thought to use sticks they probably dug holes in the ground with their hands.

Barbara: Or they could have used a rock.

Mr. Lincoln: Real thinking Barb and Harry. What do you call the line dug in the ground with a stick?

John: That's a furrow.

Bill: Well at least a stick plow is an improvement over no tool at all.

Mr. Lincoln: Why do you say that Bill?

Bill: The stick is longer than your hand, and it could make a deeper line.

John: And you wouldn't have to bend down so much if you're holding the stick, so you could work longer and not be so tired.

Mr. Lincoln: So the stick plow is an extremely useful tool, even though it is so primitive. Now, let's read on and find out how plows were improved over the years.

Classroom Simulation for IA Coding Practice - #3

Scene: A high school class is making disparaging remarks about schooling in a discussion with their teacher, Mr. Massey. Mr. Masssy is speaking.

Mr. Massey: Your years of schooling are some of the most important years of your life. If you don't realize it now you certainly will later on.

Norman: Hogwash, I don't like school anyway, so I don't care if I pass.

Jake: Me neither. I'm quitting as soon as my old lady will let me.

Ron: Yeah, you don't learn nothin' in school anyway--so who cares. I'm goin' out and earn some money and do what I want. Who cares about teachers anyways? They don't help you none, and they don't care about you. All they want to do is show you how dumb you are and how smart they are.

Mr. Massey: Well you may think you want to get out and get a job now, but if you don't finish high school, you won't get a good job. You should know that by now.

Ron: Whaddya mean Teach? I know a kid who makes a hundred dollars

Jake: Yeah, how about all them singers? They make plenty of money, and I know a lot of them didn't go to school.

Norman: Don't forget about those fighters, and ball players and things. They make money. A lot more than dumb teachers.

Mr. Massey: Well, you all may be able to think of some examples of people who have good jobs, even though they didn't finish high school, but they are the exception. There are statistics that show that the more education you have, the higher your salary will be. As I look at people around me I can't help believing that these statistics are true.

Ron: Well, sure as heck I don't believe it.

Norman: Me neither.

Mr. Massey: There is an article on this very thing back on my desk Ron. So get it please and read it and then tell me what you think. Vicki, you haven't expressed yourself on this yet. What do you think about education's importance to you?

Vicki: I think I've got to have it if I'm going to be a teacher.

All: Um! Neah!

Norman: Oh, what's his name, Mr. Teacher, there's a guy on our block that went to college, and *he* don't have a job. How do you like that?

Mr. Massey: I don't care what you say. I know what I'm talking about. You students just don't know enough to make that kind of judgment.

Jake: Mr. Massey, you callin' us stupid or somethin?

Mr. Massey: I didn't say that; I just stated you don't have enough knowledge to know what you're talking about.

Jake: Well, you're not so smart. You're a teacher ain't ya.

Mr. Massey: Now you're getting impudent. Quiet down!

Jake: Well ya called us stupid.

Mr. Massey: *That* isn't what I said.

Vicki: This conversation bores me. I agree with Mr. Massey. You guys are stupid. Shad up! You are. You don't know nothin or you wouldn't say education isn't important; it really is.

Mr. Massey: Thank you, Vicki. At least one student has some common sense in this class.

Norman: Goody two shoes.

Vicki:	Well, Mr. Massey, my ma says you're right, too.
Rest of Class:	(Jeering).
Mr. Massey:	Your mother must be a very intelligent lady, Vicki.
Vicki:	She is, Mr. Massey, she graduated from high school. I feel good about school. These are some of the happiest days I've ever had.
Mr. Massey:	I know how you feel, Vicki. My high chool days were tremendous, also. Well, I believe we've exhausted this conversation. Back to your studies and absolutely no talking.
Rest of Class:	Eh!

Determining Code Accuracy

Persons implementing the Teaching Behavior Improvement Program will be training the teachers in the Field Action Unit to use Interaction Analysis coding. It is important that coders be as accurate as possible in their observations of classroom teaching behavior and that their accuracy be assessed. There are various ways, which are reported in publications dealing with the use of Interaction Analysis, of determining coder accuracy. The basic concern in coder accuracy is that two or more persons can view the same teaching behavior and agree on what is happening within the structure of the system being used. Even though coding ground rules exist, coder accuracy is not based on an external standard, but on the degree of agreement of two or more persons trained to use the coding system and viewing the same behavior. Therefore, a computational system which produced accuracy figures showing the degree of relationship between two or more coders was needed. MOREL devised such a system in the following manner.

First, the formula needed to determine the accuracy between two or more coders was devised. This formula with examples for its use is reported on the following pages. Second, in determining accuracy in this manner the number of comparisons needed to be reduced so the data could be handled more efficiently. Reducing the number of codes used in figuring coder accuracy dictated a method of isolating the same codes from each coded sequence for comparison. This was accomplished by making a signal tape which sounded a bell tone every twelve seconds. Each time the tone sounds coders put a slash mark through the code immediately preceeding and immediately following the tone. The slashed code numbers are then used for comparison.

On the following pages are the formula and a sample sheet for determining coder accuracy. The codes used for comparison are tallied on the sample code sheet and compared with those of other coders using the suggested formula.

An Estimate of the Accuracy (Objectivity) of Human Judgment in Nominal Category Coding

A. Two judge case.

Two people independently study a series of items, (observed events, documents, verbal or written statements, etc.) and categorize each item according to a set of prearranged categories. This example is based on a ten category system. While constant in this example, the number of categories may be different in other examples. The results were:

Item Number	Assigned Code Number		Item Number	Assigned Code Number	
	Coder X	Coder Y		Coder X	Coder Y
1	8	8	17	8	4
2	8	4	18	3	4
3	4	4	19	5	5
4	6	8	20	8	8
5	4	4	21	4	10
6	3	3	22	4	4
7	4	4	23	4	4
8	8	8	24	5	5
9	6	6	25	3	3
10	5	5	26	6	8
11	4	4	27	10	10
12	8	8	28	4	5
13	6	4	29	5	5
14	4	4	30	4	4
15	4	4	31	8	6
16	8	8	32	9	8
			33	4	5

What is the best estimate of the accuracy of coders X and Y, based on these data?

Theory	Solution
Accuracy, using the notations P_x and P_y, is defined as the probability that the coder will correctly code a given item. Accuracy is assumed to be constant. The estimate is derived from the ratio (percent) of agreement between X and Y, using the notation a or $a_{x,y}$	
$A_{xy} = \frac{\text{Number of agreements}}{\text{Number of items}}$	$A_{xy} = \frac{22}{33} = .6667$
Assuming $P_x = P_y = P$,*	
$p = \sqrt{a}$	$p = \sqrt{.6667} = .817$

B. Three judge case.

Three people independently study a series of items (observed events, documents, verbal or written statements, etc.) and categorize each item according to a set of prearranged categories. This example is based on a ten category system. While constant in this example, the number of categories may be different in other examples. The results were:

Item Number	Assigned Code Number		
	Coder: X	Y	Z
1	8	8	8
2	8	4	6
3	4	4	8
4	6	8	6
5	4	4	6
6	3	3	3
7	4	4	10
8	8	8	8
9	6	6	6
10	5	5	5
11	4	4	4
12	8	8	8
13	6	4	6
14	4	4	4
15	4	4	4
16	8	8	5
17	8	4	8
18	3	4	4
19	5	5	5
20	8	8	8
21	4	10	4
22	4	4	4
23	4	4	4
24	5	5	5
25	3	3	5
26	6	8	6
27	10	10	8
28	4	5	8
29	5	5	5
30	4	4	4
31	8	6	8
32	9	8	8
33	4	5	4
34	*	9	9

*Missing

What is the best estimate of the accuracy of coders X, Y and Z based on these data?

Theory	Solution
Accuracy using the notations P_x, P_y and P_z is defined as the probability that the coder will correctly code a given item. Accuracy is assumed to be constant. The estimates are derived from the ratios (percents) of agreement.	
A_{xy} = agreement between X and Y B_{xz} = agreement between X and Z C_{yz} = agreement between Y and Z.	
In each case ration of agreement = $\frac{\text{Number of agreements}}{\text{Number of items}}$	$A_{xy} = \frac{22}{33} = .6667$ $B_{xz} = \frac{23}{33} = .6970$ $C_{yz} = \frac{19}{34} = .5588$
$P_x = \sqrt{\frac{ab}{c}}$	$P_x = \sqrt{\frac{(.6667)\ (.6970)}{.5588}} = .9118$
$P_y = \sqrt{\frac{ac}{b}}$	$P_y = \sqrt{\frac{(.6667)\ (.5588)}{.6970}} = .7311$
$P_z = \sqrt{\frac{bc}{a}}$	$P_z = \sqrt{\frac{(.6970)\ (.5588)}{.6667}} = .7643$

Theory	Solution
We define m as the ratio (percent) of correctness, based on the criterion that an item is considered correct if any two of the three coders, or all three agree on a code for that item.	
$m = \frac{\text{Number correct}}{\text{Number of items}}$	$m = \frac{31}{33} = .9394$ (Note: Item 34 is not counted because of missing data).
m can be predicted from P_x, P_y and P_z	
with $Q_z = P_x$ $Q_y \quad P_y$ $Q_z \quad P_z$	$Q_x = 1 - .9118 = .0882$ $Q_y = 1 - .7311 = .2689$ $Q_z = 1 - .7643 = .2357$
by $m^* = P_xP_yP_z + P_xP_yQ_z + P_xQ_yP_z + Q_xP_yP_z$	$m = (.9118)(.7311)(.7643) + (.9118)(.7311)(.2357) + (.9118)(.2689)(.7643) + (.0882)(.7311)(.7643)$ $= .5095 + .1571 + .1874 + .0493$ $= .9033$

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* The prediction for m compares favorably with the observed m of .9394.

The theoretical rationale of the model is discussed in "An Estimate of the Accuracy (Objectivity) of Nominal Category Coding" Allen L. Bernstein, MOREL Monograph Number 1, Nov. 1968. (Michigan-Ohio Regional Educational Laboratory).

IA Code Matching Tally
Objectivity Check

Subscripting Flanders' Interaction Analysis Categories

It is possible to break each category in the Flanders' system into smaller units in order to determine in more detail the verbal behavior of the teacher using a particular category. The following is a scheme devised by the MOREL staff so that a teacher could check his effectiveness in the execution of a particular teaching skill. This scheme is for use with the skills in the Teaching Skills Manual and is intended to serve as a model. Persons using the Teaching Behavior Improvement Program will want to devise their own subscripts according to their needs.

In subscripting,one or more cateogries are expanded which makes it necessary to omit other categories in order to keep a ten category system. It is, however, not necessary to maintain a ten category system. The user can easily build a larger matrix to correspond to the number of categories he is using. Because there is a close relationship among categories in relation to using a given skill, it is important that all categories related to the skill be subscripted. For example in subscripting for student participation (quality) expanding category nine is not enough, categories three and four should also be expanded. Two digit numbers are used with the first digit indicating the base category which was expanded.

Accepting Student Feeling
Category 1

11	Ignoring expressed student feeling
12	Verbally accept student feeling
13	Non-verbally accept student feeling
14	Limited acceptance of student feeling
22	Praise and encourage
33	Use student ideas
44	Questions
55	Lecture
66	Give direction
77	Criticism
88	Limited student response
99	*Unlimited student initiated response

*Student response can be sub-scripted - See using student ideas

Praise and Encouragement
Categories 2, 9

11	Accepts student feeling
21	Humor
22	Verbal praise
23	Non-verbal praise (nodding of head, smiling)
24	Encouragement (go on, fine, yes?, tell me more)
25	Extended use of any one phrase from category 24
33	Accepts student ideas
44	Questions
55	Lecture
66	Gives direction
77	Criticism
88	Limited student response
91	Personal experience, opinion, example
92	Student questions
93	Irrelevant answer

Using Student Ideas
Categories 3, 4, 9

11	Accepts feeling
21	Praise and encouragement
31	Building and developing the student's ideas
32	Rejection of student's ideas (verbal)
33	No comment after student verbalized an idea
34	Limited use of student ideas (simple repetition yes, O.K., nodding head, etc)
41	Facts
42	Other than facts
55	Lecture
66	Gives direction
77	Criticism
88	Limited student response
91	Personal experience, opinion, example
92	Student question
93	Irrelevant answer

Questioning
Categories 4, 9

11	Accept student feeling.
22	Praise and encourage
33	Use student ideas
41	Closed (facts)
42	Open Raise level of abstraction
43	Open Lower level of abstraction
44	Define or clarify statements or terms --
55	Lecture
66	Directions
77	Criticism
88	Limited student response
91	Personal experience, opinion, example
92	Student questions
93	Irrelevant answer

Establishing Set
Categories 4, 5

11	Accepts feelings
22	Praise and encourage
33	Use student ideas
41	Open questions
42	Closed questions
51	States goals of lesson
52	States behavioral outcomes expected by students
53	Introduces new material by relating it to previous knowledge
54	States time sequence of activities
55	Introduces new material by relating it to past experiences of students
56	Lecture
66	Gives direction
77	Criticism
88	Limited student response
99	Unlimited student response

Closure
Categories 4, 5

11	Accept feelings
22	Praise and encourage
33	Use student ideas
41	Open questions
42	Closed questions
51	Hastily sums up lesson
52	Sums up lesson by relating new material to previous knowledge
53	Has student sum up lesson
55	Lecture
66	Gives direction
77	Criticism
88	Limited student response
99	Unlimited student response

Providing Feedback to Students

11	Accepts feeling
22	Praise and encourage
33	Use student ideas
44	Questions
51	Positively relates class performance to stated goals
52	Relates individual performance to stated goals
55	Lecture
66	Gives direction
71	Negatively relates class performance to stated goals
72	Negatively related individual performance to stated goals
77	Criticism
88	Limited student response
99	Unlimited student response

(Quantity)
Category 9

Directions:

Build three digit coding scheme using 9 as fist digit and student i.d. number as second and third digits, i.e. 901, 911, etc. The student i.d. numbers are given out and recorded on a seating chart which the coder must be familiar with before attempting to code the class.

Example:

Teacher talk	333	Using student ideas
	444	Questions
	555	Lecture
Student talk	901	Student one - Mary Jones
	902	Student two - Billy Smith
	etc.	

Student Participation (Quality)
Categories 3, 4, 9

11	Accepts feelings
22	Praise and encourage
31	Building and developing student ideas
32	Limited use of student ideas
33	No comment after student ideas
41	Open question
42	Closed question
55	Lecture
66	Give directions
77	Criticism
88	Limited student response
91	Personal experience, opinion, example
92	Relevant question
93	Irrelevant question
94	Irrelevant answer

Appendix F

BEHAVIORAL OBJECTIVES

Introduction

The following pages contain material for teaching behavioral objectives. While the inservice leader using the Teaching Behavior Improvement Program will want to seek additional materials, the materials in this Appendix section should provide him much assistance in teaching others to write and use behavioral objectives. Two sections of this Appendix are structured for use as programmed material. However, those sections are not reproduced here in a programmed form. Instructions for the user precede each of those sections.

The contents of this Appendix are:

1. Suggested procedures for teaching behavioral objectives
2. Instructions for building transparencies for discussing behavioral objectives
3. Behavioral objectives presentation outline
4. Material for building transparencies on behavioral objectives
5. A set of performance verbs to use with behavioral objectives
6. Examples of each performance verb category
7. Worksheet for preparation of behavioral objectives
8. "How to Write Behavioral Objectives"
9. Behavioral objectives bibliography

Suggested Procedures For Teaching Behavioral Objectives

The use of behavioral objectives can make much difference in the clarity with which students and teachers perceive the learning task. When the students know exactly what is expected of them they are more likely to know what they must do to meet that expectation and when it is met. When the teacher knows exactly what the students must do, he also knows what teaching activities he must perform to assure that the students will be able to meet the objectives.

When first presenting behavioral objectives it may be helpful to select one person from the group and give an apparently simple objective for that person. For example, place a wastebasket ten feet in front of him, hand him an eraser, and state the objective something like the following. "The objective of this unit of instruction is to help you gain an understanding of how to toss the eraser into the wastebasket. At the end of the unit you will be graded on the basis of the test. If you fail to pass the test you will have to take the unit over."

Next have your student practice tossing the eraser into the wastebasket. Berate him when me misses and give suggestions about how arm movements are the result of muscular contractions, the necessity for coordination of the eyes and hands, proper placement of the feet, etc. You may give some hypothetical historical statement of great eraser tossers of the past century. In other words, carry out the idea of an instructional unit analagous to traditional units. After several minutes of this ask him to sit down and take a piece of paper---Then proceed to ask him a few questions about the things you have been saying. This is the test to see whether he understands how to toss the eraser into the wastebasket. Be sure to tell him he has failed and will have to repeat the unit.

Draw comments from the group on whether you have succeeded in determining that he understands the process. With a bit of questioning you should be able quite easily to raise considerable disagreement among the members of the group. Have them discuss the criteria for passing the unit and the relevance of the "instruction" to the objective as stated.

At this point you should have no difficulty in helping the group to see that an objective such as "will understand" is subject to a variety of interpretations. Also help them to see that unless the objective is clearly stated in terms of an observable behavior or product neither the student nor the teacher knows what the learning/teaching activities are.

Next you might wish to work with the material from which transparencies can be made included in this Appendix or use the sound filmstrip "Educational Objectives" from the series designed by James Popham.*

After viewing the transparencies and/or the filmstrip have the group begin working on writing a simple behavioral objective using the worksheet included in this appendix. Stress the necessity for avoiding the use of words that are subject to many interpretations. Help them to strive continually for clarity in stating the performance, the conditions, and the criteria.

Do not expect that all members of the group will be able to write clear objectives after only one or two sessions. Some people find it quite difficult in the beginning and may need several discussion sessions and a great amount of practice. The leader will need to be thoroughly familiar with behavioral objectives. He can become an expert through study of some of the source materials especially the book by Mager.

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*See bibliography at the end of this Appendix.

Instructions For Building Transparencies For Discussing Behavioral Objectives

In order to save space the material for transparencies is reproduced in a continuous manner. In reality that material constitutes nine transparencies on eleven separate sheets if large lettering is used. Each section is numbered according to the transparency it would represent in a sequenced fashion.

Each of the sheets may be copied in larger lettering to be used as the master for preparing a transparency. Depending on the equipment you have available, you may type the text with a primary-size typewriter or use hand-lettering system. Of course, the actual printing of the transparency will depend upon the equipment you have.

The use of most of the transparencies will be improved through using a sheet of paper to cover parts of the transparency while other portions are being discussed should be exposed.

Behavioral Objective Presentation Outline

I. Behavioral objective of the presentation
    A. Given a list of 15 questions on the writing of behavioral objectives, the learner will be able to answer no less than 13 of these questions at the conclusion of this presentation.

II. Who has heard anything about behavioral objectives?

III. Why behavioral objectives (rhetorical)
    A. End up someplace and not know where
    B. Not being sure where you were going in the first place
    C. Carefully describe the intended outcome wanted

IV. Overlay #1 "Advantages of behavioral objectives"
    A. Interaction Analysis
    B. Micro-teaching

V. Overlay #2 "Course Distinctions"
    A. Examples
    B. Ask questions

VI. Overlay #3 "Word Interpretations"
    A. Add to list (use grease pencil)
    B. Limiting of action verbs

VII. Overlay #4 "Definition of Important Terms"

VIII. Overlay #5 "Construction of behavioral objectives"
    A. Limit to a few words

IX. Terminal behavioral
  A. Use of examples
    1. "To enjoy baseball"
    2. "To construct a rocket"

X. Overlay #7 "Conditions"
  A. Challenge for conditions
  B. The given

XI. Criterion
  A. The minimum acceptable performance
    1. Examples
      a. time
      b. amount of answers
      c. capability in some way
      d. naming
      e. think of others

XII. Behavioral objective of presentation
  A. Break down into
    1. terminal behavior
    2. conditions
    3. criterion

XIII. Overlay #8 "Important aspects of behavioral objectives"
  A. The groups read silently and question

XIV. Let's write some
  A. Group challenge
    1. when are behavioral objectives useful?

XV. Quiz

Transparency #1

GIVEN A LIST OF 15 QUESTIONS ON THE WRITING OF BEHAVIORAL OBJECTIVES, THE LEARNER WILL BE ABLE TO ANSWER NO LESS THAN 13 OF THESE QUESTIONS AT THE CONCLUSION OF THIS PRESENTATION.

Transparency #2

SOME ADVANTAGES OF BEHAVIORAL OBJECTIVES

1. APPROPRIATE EVALUATION PROCEDURES CAN BE SELECTED.
2. SUITABLE LEARNING ACTIVITIES CAN BE SELECTED TO MEET THE CRITERIA OF THE BEHAVIORAL OBJECTIVE.
3. SPECIFICITY ALLOWS ONE TO EVALUATE WHETHER HE IS FOLLOWING THE PROPER COURSE.
4. STUDENTS CAN FOCUS THEIR ENERGIES TOWARDS RELEVANT TASKS.
5. TEACHERS CAN CHART THEIR OWN INSTRUCTIONAL GOALS.
6. MODIFICATION OF THE LEARNING ACTIVITIES TO MEET THE OBJECTIVE WHEN STUDENTS FAIL TO BEHAVE IN TERMS OF THAT OBJECTIVE.

Transparency #3

COURSE DISTINCTIONS

PREREQUISITES:
WHAT A LEARNER HAS TO BE ABLE TO DO TO QUALIFY FOR A COURSE.

DESCRIPTION:
WHAT THE COURSE COVERS.

OBJECTIVES:
WHAT A SUCCESSFUL LEARNER IS ABLE TO DO AT THE END OF THE COURSE.

EXAMPLES:

1. IN ORDER TO TAKE AMERICAN HISTORY 2 YOU MUST HAVE COMPLETED AMERICAN HISTORY 1.
2. THIS COURSE WILL LOOK AT AMERICAN HISTORY FROM 1865 TO THE PRESENT. THE TEXT FOR THE COURSE IS THE "HISTORY OF THE UNITED STATES".
3. GIVEN A LIST OF FIFTEEN QUESTIONS THE FAU MEMBERS WILL BE ABLE TO ANSWER 13 OUT OF THE FIFTEEN AT THE CONCLUSION OF THIS PRESENTATION.

Transparency #4

WORD INTERPRETATIONS*

WORDS OF MANY INTERPRETATIONS:
- TO KNOW
- TO SEE
- TO UNDERSTAND
- TO REALIZE
- TO APPRECIATE
- TO GRASP THE SIGNIFICANCE OF
- TO ENJOY
- TO BELIEVE
- TO RECOGNIZE
- TO HAVE FAITH IN TO FULLY SENSE

WORDS OF FEWER INTERPRETATIONS:
- TO SPEAK
- TO WRITE
- TO RECITE
- TO LIST
- TO COMPARE
- TO CONTRAST
- TO CONSTRUCT
- TO MAKE
- TO DISPLAY
- TO LIST
- TO SOLVE
- TO DIFFERENTIATE

(ADD TO ABOVE LIST!)

Transparency #5

DEFINITIONS OF IMPORTANT TERMS

BEHAVIOR: ANY VISIBLE ACTIVITY BY A LEARNER

TERMINAL BEHAVIOR: REFERS TO THE BEHAVIOR YOU WOULD LIKE YOUR LEARNER TO BE ABLE TO DEMONSTRATE AT THE TIME YOUR INFLUENCE OVER HIM ENDS.

CRITERION: IS A STANDARD OR TEST BY WHICH TERMINAL BEHAVIOR IS EVALUATED

EXAMPLES:
1. TO SOLVE
2. TO SOLVE A STORY PROBLEM AT THE CONCLUSION OF A ONE WEEK UNIT ON STORY PROBLEMS
3. GIVEN A LIST OF TWENTY STORY PROBLEMS A STUDENT WILL BE ABLE TO SOLVE 90% OF THE PROBLEMS CORRECTLY

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*Robert F. Mager, Preparing Instructional Objectives. Palo Alto: Fearon Publishers, Inc., 1962.

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Transparency #6

THE SCHEME FOR CONSTRUCTION OF BEHAVIORAL OBJECTIVES:

1. IDENTIFY THE TERMINAL BEHAVIOR BY NAME: EVIDENCE THAT THE LEARNER HAS ACHIEVED THE OBJECTIVE.
2. TRY TO DEFINE THE DESIRED BEHAVIOR FURTHER BY DESCRIBING THE IMPORTANT CONDITIONS UNDER WHICH THE BEHAVIOR WILL BE EXPECTED TO OCCUR.
3. SPECIFY THE CRITERIA OF ACCEPTABLE PERFORMANCE BY DESCRIBING HOW WELL THE LEARNER MUST PERFORM TO BE CONSIDERED ACCEPTABLE.

DIRECTIONS: USE BEHAVIORAL OBJECTIVE OF THE LESSON ON TEACHING BEHAVIORAL OBJECTIVES.

Transparency #7

QUESTIONS TO ASK TO DETERMINE THE CONDITIONS UNDER WHICH THE TERMINAL BEHAVIOR WILL DEVELOP

1. WHAT WILL THE LEARNER BE PROVIDED?
2. WHAT WILL THE LEARNER BE DENIED?
3. ARE THERE ANY SKILLS THAT YOU ARE SPECIFICALLY NOT TRYING TO DEVELOP?

EXAMPLES:

1. TO CONSTRUCT RADIOS
2. TO WRITE A POLITICAL SURVEY
3. DIRECTIONS: PLEASE CONSTRUCT THE CONDITIONS FOR THESE TERMINAL BEHAVIORS

Transparency #8

IMPORTANT ASPECTS OF BEHAVIORAL OBJECTIVES

1. A BEHAVIORAL OBJECTIVE TELLS WHAT A LEARNER IS TO BE LIKE.
2. A MEANINGFULLY STATED BEHAVIORAL OBJECTIVE IS ONE THAT SUCCEEDS IN COMMUNICATING YOUR INTENT.
3. THE BEST STATEMENT EXCLUDES THE GREATEST NUMBER OF POSSIBLE ALTERNATIVES TO YOUR GOAL.
4. CAN ANOTHER COMPETENT PERSON SELECT SUCCESSFUL LEARNERS IN TERMS OF THE BEHAVIORAL OBJECTIVE SO THAT YOU, THE OBJECTIVE WRITER CONCUR WITH THE SELECTION?
5. ANOTHER WAY OF DESCRIBING BEHAVIORAL OBJECTIVES WOULD BE BY CALLING THEM PERFORMANCE OBJECTIVES.
6. THE BEHAVIORAL OBJECTIVE THAT IS MOST USEFULLY STATED IS THE ONE THAT BEST COMMUNICATES THE INSTRUCTIONAL INTENT OF THE PERSON SELECTING THE BEHAVIORAL OBJECTIVE.
7. THE BEHAVIORAL OBJECTIVE MUST BE STATED IN TERMS THAT INCLUDES TEST SITUATIONS YOU INTEND TO USE AND EXCLUDES IRRELEVANT TEST SITUATIONS. CONSEQUENTLY, THE BEHAVIORAL OBJECTIVE IS STATED IN A CLEAR ENOUGH MANNER TO COMMUNICATE YOUR INTENT.
8. IF YOU GIVE EACH LEARNER A COPY OF YOUR BEHAVIORAL OBJECTIVES YOU MAY NOT HAVE TO DO MUCH MORE.

Transparency #9

BEHAVIORAL OBJECTIVES QUIZ

I. DECIDE WHETHER THE STATEMENT IS STATED BEHAVIORALLY BY PLACING "YES OR NO" IN FRONT OF THE STATEMENT.
   1. TO REALLY UNDERSTAND THE LAWS OF PROBABILITY.
   2. TO KNOW THE NUMBERS OF THE DETROIT TIGER PLAYERS.
   3. TO BE ABLE TO WRITE FIVE EXAMPLES OF MYSTERY PLOTS.

II. DETERMINE WHETHER THESE STATEMENTS ARE TRUE OR FALSE BY PLACING A "T" OR "F" IN FRONT OF THE NUMBER.
   1. BEHAVIORAL OBJECTIVES MUST CONTAIN CONDITIONS.
   2. BEHAVIORAL OBJECTIVES MUST CONTAIN TERMINAL BEHAVIOR EXAMPLES.
   3. BEHAVIORAL OBJECTIVES MUST HAVE CRITERION FOR SUCCESS.
   4. "TO BECOME AWARE OF" IS A GOOD EXPRESSION TO USE IN STATING OBJECTIVES IN BEHAVIORAL TERMS.

III. COMPOSE FIVE DIFFERENT OBJECTIVES CONCERNING FIVE DIFFERENT TOPICS, REMEMBER THAT A WELL CONSTRUCTED BEHAVIORAL OBJECTIVE CONTAINS:
   1. THE BEHAVIOR DESIRED
   2. THE CONDITIONS
   3. THE CRITERIA OF SUCCESS

IV. WHAT ARE THREE ADVANTAGES OF WRITING INSTRUCTIONAL OBJECTIVES BEHAVIORALLY?

A Set Of Performance Verbs To Use With Behavioral Objectives

Performance Verb	Behavioral Synonym(s)	Definition For Use
1. Identify	Choose, select, pick-up point out, touch	Learner makes a selection or separation of one from a group
2. Order	Arrange	Learner ranks according to a certain characteristic(s)
3. Name	Say, state, write (non-verbal)	Learner tells what it is called
4. Demonstrate	Show	Learner is called upon to go through some sort of procedure
5. Describe		Learner identifies and names a series of characteristics that a second learner can do the same from the first learner's explanation
6. Construct	Make, compile, assemble	Learner creates a product

Performance Verb	Behavioral Synonym(s)	Definition For Use
7. State a Rule	Establish law, formula	Learner states accepted standards that are applied to constructing an explanation
8. Apply the Rule		Learner uses the rule effectively
9. Distinguish	Discriminate	Learner identifies differences

Examples of Each Performance Verb Category

Identify	"What shape is this block?" After a learner is presented a cube
Name	"What color is the block?"
Order	"Arrange the blocks from the one that is smallest to the one that is largest."
Demonstrate	"Take three large steps backward." "Point up." "Move your left foot forward."
Describe	"Tell Donald how to assemble this dinosaur skeleton. You may only talk to him."
Construct	"Draw a picture in the same shape as the arrangement of these objects." Place four markers in the shape of a square.
State A Rule	"When is the action verb demonstrate used in a behavioral objective?"
Apply A Rule	"The length of a room is 15 feet and the width is ten feet. What is the area of carpeting needed to cover the floor?"
Distinguish	"Tell the difference between the following two materials: burlap and velvet." (after blindfolding a learner)

Worksheet For Preparation Of Behavioral Objectives

Statement of performance or product	Statement of conditions	Criteria for success

The following paper, "How to Write Behavioral Objectives", is a programmed paper. It is, however, reproduced here in a continuous manner. Persons using this paper as a programmed paper will need to reproduce it in the manner of programmed material. Each section is numbered according to the page it would be in a programmed fashion.

How to Write Behavioral Objectives

by William C. Farlow

1 In his book, Preparing Instructional Objectives, Robert Mager tells an interesting little fable with the moral that if you're not sure where you're going you might end up someplace else. I would like to offer a couple of paraphrases. If you're not sure where you're going you can miss it by almost any road you wish to take. Also, if you're not sure where you're going you'll never know when you get there.

To my way of thinking this illustrates much of what happens in education. We spend a great deal of time talking about the objectives of the classes we teach but very little time or effort actually describing those objectives in ways that tell us how we will know when we have reached them.

The purpose of this paper is to try and help you begin to formulate your teaching objectives in ways that will let you know when you have reached them. Notice that I did not say that this was the objective of the paper. I'll come back to that later.

It seems fairly obvious that the easiest way to determine if an event is happening is to observe it, if observation is possible. The trick is to design events so that they must be observable. Observable events among human beings--in which group students are more or less roughly located--are called behaviors. Teaching objectives which result in observable events then would be called behavioral objectives.

Let's do a little review of these simple ideas and see if we are together. Which of the following would be an event that could be easily observed?

1. A student eating a sandwich
2. A student enjoying the flavor of his sandwich

If you selected #1 as your answer turn to page 2. If you selected #2 as your answer turn to page 3.

2 A student eating a sandwich is an event that is easily observed. His manners may or may not be acceptable, but it is easy to observe whether he is eating. If you had as a teaching objective the task of teaching a student to eat a sandwich it would be easy to observe whether the objective had been met.

Now let's take a look at how we might express that objective so that it could be observed. Suppose our job was to teach a student to eat a sandwich. If we were to list as our objectives "the student will understand how to eat a sandwich" or "understanding how to eat a sandwich", how could we determine whether such understanding had been learned? We might have him write an essay on the delights of eating a sandwich but could we be sure that he understood how to eat it? Unfortunately, "understanding" doesn't always result in a behavior that is easily observed.

If, on the other hand, we had said simply that as a result of our teaching "the student will eat a sandwich" it would be very easy to observe whether he had met that objective. The act of eating is much more easily observed than is an understanding of how to eat. The same idea is true of other concepts which we might wish to teach.

If we were to follow this principle in stating our objectives in teaching, we would state the objectives in ways that would indicate exactly what student behavior we seek to observe. For example, which of the following would be more likely to result in an observable behavior?

1. The student will understand the addition of whole numbers.
2. The student will demonstrate his ability to add whole numbers by working the problems given him by the teacher.

If your answer was #1 turn to page 4. If your answer is #2 turn to page 5.

3 Well, let's take a look at what we wanted. I asked you to pick an event that could be easily observed. Your choice was "a student enjoying the flavor of his sandwich". It might be that you are right. If that sandwich really transported the student to heights of ecstasy he would probably show it. On the other hand it's a little difficult for me to think of a sandwich being that good. My powers of observation aren't sufficiently reliable to permit me to be certain that I can tell whether a student is enjoying his sandwich under most circumstances, but I think I can observe whether he is eating it.

This matter of reliability of observation is an important element of stating behavioral objectives. The behavior should be so clearly stated that the average person can observe it. It should not be stated just for you. If you state your objectives with sufficient clarity your students will be able use them to guide their study and any other teacher will be able to use them if needed. And, let's face it, two weeks from now you might have a little difficulty reading your own objectives if they are not very clearly written.

Turn to page 2.

4 We need to take a look at some words like "understand, believe, know, appreciate, etc". Such words have found their way into educational goals and objectives with such frequency that they have become accepted. But how does a student demonstrate understanding, knowledge, and appreciation?

What is a student doing when he "understands" the principles of bookkeeping? What is a student doing when he "develops an appreciation" of art? If you can state what he is doing then this statement of his actions would be a better statement of the objective because it is easily observed and evaluated.

In general, we will find it much easier to evaluate a student' work, and our own, if we formulate objectives that call for such things as:

will write, will list, will recite, will demonstrate,
will show, will differentiate.

Turn to page 5.

Number 2 is the correct answer since it requires the student to actually
5 perform in a way that can be observed easily.

We have been talking rather loosely about teaching objectives and student objectives as if they are the same thing. Actually the objective of teaching is to some how or other induce learning on the part of the student so we should be talking about student objectives. That is, we want the student to learn certain principles or laws or skills or facts.

Since the reason for teaching ought to be the stimulation of learning in the student, it is probably better to state objectives in terms of the student. We will, then, state our objective in terms of what the student will be doing when he has learned what we want him to learn. Another way of saying the same thing would be to list our objectives as student behavioral objectives. For example, at the beginning of this paper I stated that the purpose of the paper is to "try and help you begin to formulate your teaching objectives in ways that will let you know when you have reached them". If I followed the principles mentioned above, which of the following would be more correct?

1. The student will learn to state objectives in behavioral terms.
2. The student will state his objectives in terms of what his students will be doing when they have reached those objectives.

If your choice is #1 turn to page 6. If your choice is #2 turn to page 7.

You selected "the student will learn to state objectives in behavioral
6 terms" as being the better choice. I hope that is what happens but I
will be much more satisfied if the student not only learns how, but actually does state his objectives in terms of what the student will be doing. You see, from my position, and from yours, a little later, there is no way I can tell if you really have learned unless you perform. A phrase like" the student will learn" sounds very good but close inspection reveals that it is meaningless until the student does something to demonstrate his learning. You and I should continually try to state our objectives in terms of what the student will be doing when he has learned what we wish him to learn.

Go to page 5 and select the other alternative.

Your choice is correct. Since I want you to state your objectives in
7 terms of the appropriate student behaviors, I should state mine the same
way, in terms of what you will be doing when you have learned what I want you to learn.

One of the factors of learning not frequently considered is that of the environment or conditions under which performance is expected. That is, we don't often consider the conditions the student will be operating or working in when we want him to exhibit his learning. It isn't enough to say that the student will operate a tape recorder correctly at the conclusion of the training program. We need to state the conditions under which he will operate the recorder. Do we expect him to stand on his head? Will he be blindfolded? Can we assure him that the recorder is in operable condition and all accessories are present? Will he have the same kind of recorder he was trained on?

Which of the following does the better job of stating the conditions of performance?

1. Given a reference of his choice the student will solve the following chemical equation" $H_2O + CO_2 =$
2. The student will solve simple equations

If you selected #1 go to page 8. If your selection is #2 go to page 9.

8 Yes, #1 is the better choice. However, there are other conditions that could have been stated and if you were bothered by the lack of some of these other conditions you are really on the ball.

Just how detailed should you be in stating the conditions of performance? Sufficiently detailed that you and your students will know exactly what you expect. You should let him know what you are going to require and under what circumstances and with what equipment he will perform, but it does no good to burden him with unnecessary limitations. For example, if your objective is to have the student ride a bicycle it is not necessary to state the make of bicycle or the pressure in the tires since the skill involved in riding a bicycle is equally applicable to almost any bicycle the student is likely to find and the tire pressure is not terribly important to his demonstration of ability.

Your statement of conditions should also mention those things the student will be denied. If he will not be permitted to use a calculating machine for his computations he should be told this. If he must work from memory rather than using a reference this should be part of your statement. Does the following objective contain words that limit the conditions under which the student will be expected to perform?

> Given a list of 20 factors which might lead to significant historical events the student will select 15 which contributed to the cause of World War II.

If you believe this does contain words which limit the conditions of performance go to page 10. If you believe it does not, go to page 11.

9 Your task was to select the choice that did the better job of stating the conditions of performance. The statement you selected only requires the student to solve simple chemical equations. It says nothing about whether he will be able to use a reference and does nothing to define the word "simple". I don't know what is meant by "simple chemical equations" and neither do you - when I use it. What I think is a simple equation might well be extremely difficult to someone else. (More likely the opposite would be true!)

The conditons of performance should be clear enough that the student will know exactly what is expected of him. He should know how much he will have had to learn by the time the performance is required, what sort of material he will have to use as reference, and how much time he will have if time is a factor.

Return to page 7 and select the other alternative.

10 Right! The objective tells the student he will have to select factors from a given list. He will not be able to go to the library or refer to a book. He will have to rely on what he has learned. However, he will not have to rely on recall alone since you are providing him with a list that should have some meaning to him.

If you think there is something significant in requiring him to select 15 out of a list of 20 you are correct. We are beginning to think about the levels of expectation or criteria of success. We are telling him that he will have to meet certain requirements in order to pass this part of the course. Part of your objective ought to be a statement of criteria. Are you demanding 100% performance? Sometimes that is the only acceptable level. Do you expect a lower level with extra credit given for a higher degree of performanc? Are you setting a time limitation? Unless you are willing to accept any level of performance, you should let the student know what he will have to do and how well he will have to do it. Common sense should prevail here. You should not impose unnecessary or unrealistic criteria, just enough that the student will have learned what you want him to know.

Which of the following clearly states criteria of performance?

1. The student will demonstrate mastery of solving quadratic equations.
2. Given 5 quadratic equations, the student will determine the correct solutions to at least 4 within 30 minutes.

If you selected #1 go to page 12. If your choice is #2 go to page 13.

11 The sentence says that the student will have 20 factors from which he must make his choice. He can not go to his memory and dig up other factors. He must make his choice from this list.

Actually, while the statement limits the condition of performance, it is also some aid to performance since it tells the student he will not have to rely on memory alone to list 15 factors leading to World War II.

(If you think this isn't a very good objective for a history class you aren't likely to get much quarrel from me. I don't think it's very good, either.)

Turn to page 10.

12 What is required to demonstrate mastery of quadratic equations? Would finding the solution to one problem be enough? Perhaps you will require the student to solve 20 problems. From the objective as stated does he have any way of knowing?

The way the objective is stated too much is left to the caprice of the teacher. It could be interpreted to mean that you will give him one problem and if he fails that he fails that part of the course. If that is what you mean to do you had better tell your students so that they will have time to try and get into another teacher's class.

Return to page 10 and select choice #2.

13 Your choice is correct. The objective tells the student that he will have to find the correct solutions to 4 out of 5 problems in order to pass this part of the course. It also tells him that he will have only 30 minutes to determine his answers.

There are some instances when 100% performance is required. Most of the time it isn't necessary to perform at that level. When it isn't, the student has a right to know. This is not to indicate that he "can do only enough to get by" but rather to remove some of the pressure by letting him know just what is required. He can still solve all 5 if he wishes. If this will gain him extra credit he should be told this as part of the objective.

If we were now to think back over the work we have done we could list three parts of a behavioral objective as we have been talking about them. We have discussed what we might call the subject matter, the action the student will be performing when he has learned what we want him to learn. We have also discussed the conditions of performance, the how, where, and with what he will perform. And, finally, we have discussed the measure of success or criteria of performance.

These three items are fundamental to the statement of a behavioral objective. With all three included in the statement both you and the student know exactly what is expected. The student knows what, how, and how well he is going to have to perform to meet with success. Perhaps even more important, you know what you are expecting so that you can tailor your teaching to the required outcomes.

Let's try a few examples to see if you have a grasp of the fundamentals of writing an objective in behavioral terms. I'll give you a situation and you write a behavioral objective that will fit the situation.

Here is the situation. You are a teacher of sixth grade arithmetic. Your student is working on addition of mixed numbers. (Just so that we keep our various kinds of math straight, to me a mixed number is one that contains both a whole number and a fraction.) You want him to learn how to add three mixed numbers, or more, and convert the fractional part of the answer to a fraction with a value of less than one with the excess over one added to the whole number portion. You will be satisfied if he can correctly work any eight out of ten examples given him within twenty minutes. He will not be able to use his book or ask any other student for help.

After you have written your objective refer to the paragraph below. Please wait until you have finished writing.

14 Now inspect your objective. Have you clearly stated what he will do so that there can be no question or misunderstanding? Have you listed conditions so he will know what he can and cannot use for help? Have you clearly told him just how well he will have to perfrom?

Let's try one more. Think of your own class and subject matter. Pick a small topic and write a behavioral objective. When you have finished writing refer to the paragraph above. Good luck!

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Appendix G

MICRO-TEACHING

Introduction

The experience of practice in a non-threatening situation is essential to the learning of new behaviors or specific teaching skills. Micro-teaching provides the vehicle for such practice in the Teaching Behavior Improvement Program. Basically micro-teaching is a scaled down teaching encounter which lasts for appoximately five minutes, uses four to five students and focuses on a single teaching behavior or teaching skill. A single micro-teach cycle consists of planning teaching, critiquing, planning a re-teach, re-teaching and critiquing the re-teach. Prior to using micro-teaching in the Teaching Behavior Improvement Program, the inservice leader and the teacher focus their attention on the analyzed data. The inservice leader assists the teacher in examination of the data. The teacher selects a teaching behavior or skill that can be practiced in a micro-teach setting.

In this section of the appendix materials related to the use of micro-teaching in the Teaching Behavior Improvement Program are reproduced for persons implementing the Program. This section contains:

1. Procedures for teaching the use of Micro-teaching in the Teaching Behavior Improvement Program
2. Planning and critiquing a Micro-teach
3. Skill practice sheet
4. "Micro-Teaching: A New Framework for Inservice Education"
5. Micro-teaching bibliography

Procedures for Teaching and Using Micro-Teaching

The following outline is a suggested procedure for teaching and using micro-teaching in the Teaching Behavior Improvement Program.

1. Read and discuss Allen's article - "Micro-Teaching: A New Framework for Inservice Education".
2. Discuss the systematic approach to micro-teaching which consists of the following steps:
    a. Identification of a skill from the analyzed data which can be practiced in a micro-teach setting.
    b. Gathering pre-data on a teacher's use of a particular skill prior to micro-teaching in order to show change as a result of practice on a skill.
    c. Plan the micro-teach using the skill practice planning sheet.
    d. Conduct the micro-teach cycle of teach, critique, re-teach, critique.
    e. Evaluate change and plan for another micro-teach using the same skill, classroom use of the skill or another micro-teach using a different skill.

3. Discuss the purpose and process of critiquing a micro-teach.
4. Discuss how each of the following tools are used in relation to micro-teaching. (Refer to parts of Chapter III for assistance)
    a. audio and/or video tape
    b. student feedback
    c. Interaction Analysis
    d. subscripting Interaction Analysis
    e. teaching skills
    f. behavioral objectives

Skill Practice Planning Sheet

Skill____________________________

Date_____________________________

1. Behavioral objective for students.

2. Behavioral objective for teachers.

3. Plans for the micro-teach.

4. Criteria to be used for determining the success of the micro-teach.

Planning and Critiquing a Micro-Teach

One of the tools in the MOREL Improvement Strategy is micro-teaching. It is used to practice a small part of the teaching act (teaching skills). Micro-teaching focuses on a specific teaching behavior and the resulting student behavior. The planning for the micro-teach should be done with much care and thought. Before micro-teaching, the teacher must explore and answer the following questions:

1. What teaching skill do I want to practice?
2. What are my behavioral objectives?
3. What are the student behavioral objectives?
4. What topic, subject or content will I use in practicing the skill?
5. What will I use to gather data for evaluating my success - Interaction Analysis, student feedback, etc.?

After the micro-teach is completed, the inservice leader and teacher view the video tape or listen to the audio tape together focusing only on the objectives stated in the plan. Caution: Do not discuss or evalute all parts of the teaching act. Focus only on what teaching behaviors helped the teacher achieve the goals and what behaviors interfered. Carefully observe all student behavior. Some questions to keep in mind are:

1. How did each student react to the teacher's behavior?
2. How did the teacher react following student comments, questions, or answers?
3. Did the students respond to some non-verbal organization such as following a common pattern of answering in turn, waiting for student with a ready response to respond, hesitate to get into the conversation. Did the teacher recognize the existence of a common pattern of students' behavior.

After viewing, or listening to, the total tape,replay it stopping at particular points to:

1. Look at teacher behavior which helped teachers reach the goals.
2. Look at student behavior which helped the teacher reach the goals.
3. Discuss alternative behaviors the teacher might have used.
4. Look at how the teacher reacted after each student's reaction.
5. Analyze data gathered to measure success.

After the second viewing and discussion, agree on what specific changes might bring improvement in a re-teach. The teacher should take ten to twenty minutes to write a plan for a re-teach. Following the re-teach, view the tape using again the above suggestions, however, focus only on the changed behavior and its result on student behavior. Several alterntives are possible at this point in time. They are:

1. Plan to try the newly learned skill in a total classroom situation.
2. Conduct additional practice through the micro-teaching situation.
3. Try a different method of practicing the same skill.
4. Choose a new skill and develop a new strategy.

Micro-Teaching: A New Framework For In-Service Education

Dwight W. Allen
Stanford University*

A young science teacher entered her micro-teaching class carrying a live snake. The purpose of her lesson was to identify characteristics common to snakes and not to other animals. As a result of her dramatic entrance, involvement was immediate and sustained throughout the five-minute lesson. At the end of the lesson, no one could doubt that this was real, not laboratory teaching.

The teacher was evaluated and rated by the students and supervisors in accordance with the Stanford Appraisal Guide. Her ratings were generally quite high, with the exception of "pacing the lesson." Immediate feedback indicated that this otherwise effective teacher talked too fast and covered too much information through the lecturing technique. It was suggested that she limit the information to three or four major characteristics which distinguish snakes from other types of animals, and refocus in order to provide for student summary and more effective closure.

With immediate information as to suggested improvement, the teacher then re-taught the same lesson dealing with snakes. On subsequent re-teach, the teacher, students, and supervisors felt the lesson indicated definite improvement. All agreed that the material was probed in greater depth, and the material was more lucid in organization.

This teaching situation occurred as part of a seminar series for inservice training of supervisors at the Campbell Union High School District in California. The purpose of the series was to change teacher perceptions of their own teaching behavior, and to provide training for specific teaching skills. Teachers and supervisors were given only a cursory amount of training and initial application, yet supervisors were able to get differences in teaching behavior. The training seminars demonstrated that micro-teaching can be of real value to experienced personnel.

The micro-teaching structure is a scaled-down teaching encounter in class size and class time which has been developed in the Stanford University Secondary Teacher Education Program. Class size is limited to one to five students and class time from five to twenty minute lessons. Micro-teaching may be used with or without video-tape.

While micro-teaching was first developed for preliminary experience and practice in teaching and as a research vehicle to explore training effects under controlled conditions, the concept can be of service to experienced teachers as a means of gaining new information about their teaching in a relatively short time, and as a means of changing teacher perceptions of their own teaching behavior. Realistic approximations to classroom conditions allow predictions of subsequent classroom teaching to be made with a high degree of accuracy, for the students are reacting and evaluating as real students, not role-playing. This constitutes a real teaching encounter, not one which is simulated; only it is reduced in terms of students and time.

Used with permission of the author previously cited in *The High School Journal*, May, 1966.

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Micro-teaching may therefore serve a dual purpose; it may be utilized in a diagnostic sense to ascertain specific problems in presenting curriculum, and it may be used in an evaluative sense to rate total performance through the use of immediate student feedback. Previous experiments have shown that student ratings of teacher performance are more stable than other types of evaluation.

Experienced teachers may gain new insights through adaptation of the micro-teaching model. Under the present framework, if a teacher wished to try a new approach in a particular lesson, he must wait until the following year to test alternatives to that lesson. In micro-teaching, the teacher can experiment with several alternatives with a limited number of students each time, with the opportunity for immediate evaluation and additional trials. Following this limited application, the plan can then be presented to the classroom. In this way, teachers may experiment with new methods and new content without the risk of defeating student learning and with much more satisfactory timing.

The micro-teaching clinic is an effective stimulus for the improvement of teacher performance after a performance plateau is reached in early tenure. The most effective teachers attain a high level of performance early in their careers. Unfortunately they rarely have the stimulus to further increase their competence. Providing them with an opportunity to try new ideas easily and without risk to student learning can be an important asset to professional development.

The following uses of micro-teaching are among those appropriate for in-service situations:

1. The teach-reteach pattern.

By using a teach-reteach model, a teacher can use the experience of teaching a lesson to an initial group of students to make changes which can be immediately incorporated and taught to a different group of students for comparative evaluation. The scaled-down nature of the micro lesson makes such repetitions feasible and economical. By using the teach-reteach pattern, specific teaching skills can better be evaluated; content can be tested with one teacher practicing a new lesson while the rest of the department uses this lesson as a basis for critique and suggested alternatives. On the reteach, the experienced teacher can test new ideas and methods determined by student reaction and departmental suggestions thereby improving both the quality of content and mode of presentation.

2. Micro-Teaching as a trial framework for team presentations.

Groups of teachers can experiment together with new techniques in content or mode or presentation. Several teachers from a given department could teach while the rest of the department uses their presentation for purposes of evaluation. Perhaps several departments might expand this experiment as a means for developing interdisciplinary curriculums.

3. Micro-Teaching as a site for trial of instructional level.

It is often difficult to predict the instructional level of materials. Even the most experienced teacher can make serious misjudgments about student experience or maturity required to learn a given set of materials. In some instances this will require the alteration of the lesson materials. In other circumstances the lesson can be taught at another level as indicated. In Jefferson County, Colorado, a lesson was developed for fifth and sixth-grade students in science. In a trial of this lesson in a micro-teaching situation, it was discovered that second-grade students caught on to this lesson faster than did older students. Micro-teaching provides good opportunity for such quick comparisons. Obviously, there remained many questions as to why and under what circumstances the results would have differed. These questions could also be tested quickly in the micro-teaching structure where immediate feedback is available and the conditions could be altered easily as desired.

4. Micro-Teaching for pre-employment prediction.

Micro-teaching can serve as a framework for selection or rating experienced teachers seeking employment. An evaluation committee could rate the teacher under "live"conditions instead of relying solely on recommendations or grade-point average. This concept can be extended to include evaluation of current employees for possible promotion. Under the present system, teachers are observed once or twice a year, given a rating form or written recommendation which signifies the teacher's competence. With the use of micro-teaching, teachers can be observed frequently for brief durations of time, under controlled conditions. With micro-teaching as a source of evaluative evidence, new criteria for employment performance can be developed. For example, it might be more noteworthy to judge how much a potential teacher will be able to improve as a result of inservice supervision than to assess current performance. Also as we learn to differentiate teaching roles, micro-teaching situations can be devised to provide practice and evaluation of specific competences.

A recent experiment for pre-employment prediction was carried out jointly by Stanford University and the Freemont Union High School District in California. Teachers seeking employment with the Freemont District taught a micro-lesson. Two methods for selection were then used; Freemont selected teachers using traditional means, while Stanford University predicted teaching success based solely on micro-teaching evaluation. The results of this experiment will be available in the fall after Stanford and Freemont correlate their selections and predictions. Those teachers chosen by Freemont will be checked against their ratings in micro-teaching, and both predictions will be evaluated by teaching success during the year. It is not anticipated that micro-teaching can replace other employment screening entirely, but the present experiment can provide evidence as to possible directions for further exploration.

5. Micro-Teaching to train supervisors.

By focusing on specific techniques desired for experienced teachers, supervisors can identify the necessary variables in training teachers to improve their teaching behavior. The beginning teacher, for example, is observed usually one full class period followed by a teacher conference. The new teacher recieves a list of suggested changes, but the supervisor has no way to test the results of the conference since there is typically no effort to evaluate the application of supervisory suggestions until months later, with different conditions in student reaction, materials, or grade level. No one ever knows the results of supervision.

With micro-teaching, a beginning teacher is observed for a brief lesson followed by a conference followed by another observation. During the conference, the trainee must absorb both the students' and the supervisor's suggestions for improvement. During the re-teach, the supervisor can immediately evaluate progress and understanding on the part of the teacher. All instruction and evaluation occurs within a relatively short period. Experiments have indicated that a teacher should not be given more than one or two specific points to concern himself with during any one supervisory sequence.

There are many facets of supervision that can be studied, using the micro-model: testing and looking at alternatives for supervision; varying the time and length of visits; letting teachers select the time for supervision; experimenting with the concept that the quality of supervision improves with a reduction in the number of conference suggestions; experimenting with or without video-tape; studying and enumerating the skills of teaching (identifying specific training protocols); using new materials; distinguishing between behavioral objectives and pious hopes; improving the ability to diagnose and state behavioral objectives; and developing instructional techniques.

6. Micro-Teaching for continuing the supervision and evaluation of beginning teachers.

This model lends itself to intensive supervision, immediate critique, and opportunities to repeat the practice session if necessary. Micro-teaching simplifies the complexities of teaching by isolating specific variables in the total teaching act which can be identified and therefore manipulated. It also provides greater control over practice in a wide range of teaching situations, in a variety of pupil types and class compositions and in the possible variation in amount of practice according to individual needs. Micro-teaching increases the economy of supervision by increasing the amount of practice possible within a limited period of time requiring fewer facilties and pupils. It also anticipated new alternatives in evaluation by providing good records of teaching performance at periodic intervals under standard conditions and permitting several judges to evaluate and re-evaluate a single performance.

The micro-teaching model can be adapted to different grade, ability, and interest levels. This is especially important at the junior and senior high level. Individual adaptations would vary from school to school, depending upon local needs.

Initiating and maintaining a micro-teaching clinic serving local needs takes few facilities and funds.

Micro-teaching can facilitate curriculum planning. If the committee is working during the summer, then the micro-classes should be utilized during the summer. Students could be hired and paid out of regular district funds as part of the cost of curriculum development. This would provide pre-class trials of materials with the opportunity for trying and testing many alternatives.

If the curriculum committee is working on planning development during the regular school year, then micro-teaching should be used a few days before a teacher would normally be teaching the lesson. This would be particularly useful for evaluation in team-teaching situations. Teachers could use their own students for evaluation purposes, but on each occasion, teachers should select different students from their classes for trial runs. This provides the necessary random sampling and does not unduly affect the learning of any one student. Great variety is possible with only a few students.

During the summer of 1965, Stanford University had continued experimenting with the micro-teaching model as a method for training beginning teachers. For 140 pre-service teachers, the total number of students required was 42. Ten different student teams composed of our students each were used (with two reserves) and this combination gave great variety for each teacher.

The micro-teaching model can be used as a part of teacher workshops. The model can be adapted at any time during the workshops; on Saturdays; during the summer, or during the regular school year. Students could be selected on a voluntary basis or hired. The important thing to remember is that adaptation of micro-teaching does not take many students or complex logistics.

A recent interview with experienced personnel from Jefferson County, Colorado, indicated that micro-teaching during summer workshops for in-service teachers is particularly valuable. New ideas and methods were tested within the micro-framework. The model was also successfully used on parents' night as a means of explaining to parents new ideas and curriculum to be presented during the summer.

During the summer, the problem is to select a representative student population for which the materials are ultimately being developed. Experiments to date have shown that there is no difficulty employing the students; they are eager to participate. Funds can be drawn from the curriculum planning budget. Proportionately, the amount of financial resources needed is not high.

Training of micro-teaching students is minimal, since training is limited to teaching the students how to use the evaluation instruments. Two types of instruments have been used in Stanford's experimentation; a general rating form (the Stanford Teacher Competence Appraisal Guide), and specific forms developed to reflect specific skills. The latter instruments are designed by the staff responsible for the training so that the desired responses are accounted for selectively.

The structure of the micro-teaching clinic will depend on the focus and purposes of the experimentation; that is, the structure will be different if the focus is on staff training rather than on materials. If the focus is on staff training, then the students should use narrow and specifically designed rating instruments to measure staff variables. If the focus in on materials evaluative instruments would have to reflect the training focus.

The micro-teaching clinic can be structured so that it focuses upon teaching competences where the students' point of view is most relevant. This would include student reaction to beginning the lesson (establishing set), establishing appropriate frames of reference, increasing student participation, using questions effectively, recognizing and obtaining attending behavior, control of participation, providing feedback, setting a model, employing reinforcement, effectively giving directions, and ending the lesson (achieving closure).

Micro-teaching successfully facilitates maximum flexibility in learning how to use new curriculum, in learning how to evaluate curriculum and performance, and as a selection and prediction device. Micro-teaching lends itself well to experimentation with practice and evaluation of several techniques: the teach-reteach pattern offers the opportunity for immediate student reaction and feedback; team presentations can be tested on a limited scale before postulation to the class; the model can be adapted at different grade levels; a micro-teaching situation can provide information for determining the level where a lesson might be developed for supervisors; continued supervision and evaluation of beginning teachers can be increased.

Micro-teaching offers the opportunity for new insights and perceptions of teaching behavior in presentation and evaluation techniques. The model can be adapted to local needs in testing both immediate and long-range goals in curriculum planning. Micro-teaching holds a kaleidoscope of opportunities for rethinking the basis of inservice education.

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Appendix H

MOREL TEACHING SKILLS MANUAL

by Barbara Williams

Introduction

After two years of extensive and intensive inservice work with teachers, the MOREL staff is ready to identify and describe particular skills that help teachers improve their effectiveness in the classroom. This manual is specifically designed to be used with teachers by providing them with suggested teaching skills which can be systematically practiced and evaluated in a microteach or classroom setting. The following teaching skills were most often selected by teachers as those of greatest importance and usefulness.

1. Questioning
2. Using Student Ideas
3. Accepting Student Feeling
4. Praising and Encouraging Students
5. Establishing Set
6. Achieving Closure
7. Encouraging and Controlling Student Participation
8. Providing Feedback to Students

In the MOREL Teaching Skills Manual each of the above skills is defined, the desired student behaviors that could result from use of each skill are listed, and the teacher behaviors that can be observed when the skill is properly being used are listed.

The skills discussed in this Manual are not offered as "the cure" for all the ills that may befall the classroom teacher, nor are they intended for use in a vacuum. The teaching skills can only be useful for the teacher if they are viewed as one part of a total teaching behavior improvement process. The contents of this Appendix section are:

1. Questioning
    - Levels of Thinking
    - Probing Questions
    - Clarifying Questions
2. Using Student Ideas
3. Accepting Student Feelings
4. Praising and Encouraging Students
5. Establishing Set
6. Achieving Closure
7. Encouraging and Controlling Student Participation
8. Providing Feedback to Students
9. Class Reaction Forms

Questioning[1]

The skill of questioning is one of the most powerful skills that teachers can have at their disposal. In this Manual questioning is divided into the following three areas:

1. Questions that raise or lower the level of thinking
2. Probing questions
3. Clarifying questions

Questions That Raise or Lower the Level of Thinking

Level I--Memory

Memory is defined as recalling or recognizing information. This category of thinking is practically self explanatory but it should be noted that more complex mental processes cannot take place until the facts or information have been remembered. These questions usually ask what, when, where, and who.

Example: "According to our author, what presidents of the United States have been rated superior? What were the main contributions of each?"

Level II--Translation

Translation is defined as changing information into one's own words or into another form. Many times a teacher will want to check a student's understanding of information that has been given to him. A question that calls for the student to "translate" the given information into his own words or into another form can often accomplish this.

Example: "Now that we have studied the United States Constitution, please draw a chart or diagram that illustrates the 'separation of powers' in our government."

"Describe in your own words the main contributions of Presidents Adams and Jefferson."

Level III--Interpretation

Interpretation is defined as discovering and explaining relationships between facts, generalizations, definitions, values, and skills. At this level of thinking, the student should be able to take given sets of information and make comparisons according to similarities or differences. The student should be able to determine what ideas, by implication, might result from certain specific information. When a student is unable to respond at this (or any subsequent) level of thinking, it is necessary for the teacher to lower the thinking level by asking a question that calls for, in this case, either translation or memory. This level of thinking is particularly valuable in the area of science.

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[1] Part of the material in the section on questioning was taken from Norris M. Sanders, Classroom Questions: What Kinds, New York: Harper and Row, used with permission from the author.

Examples: "In what ways are the contributions of Washington and Lincoln similar?"

"Why does the lowering of air temperature raise the humidity?"

"In what ways are all mammals alike?"

Level IV--Application

Application thinking involves the solving of problems through identification of issues and selection of appropriate generalizations and skills. The application question should be designed so that it gives the students practice in the transfer of knowledge. These questions should have the following characteristics:

1. The knowledge asked for should have explanatory or problem solving power.
2. The knowledge should be dealt with in its entirety rather than in parts or segments.
3. The question should contain a minimum of directions since it is based on previously learned material and thus the students should know what to do.

The application question differs from the interpretation question since it requires the student to go beyond just knowing a theory and being able to demonstrate its use when asked to do so. When presented with a problem, the student must independently choose pertinent knowledge and then apply an appropriate theory.

Examples: "Write a paper showing that the period in U. S. history from 1855-60 is similar or dissimilar to the period from 1964-69."

"Tell why the bathroom mirror or window fogs up when you take a shower."

Level V--Analysis

Analysis is the systematic examination of facts in order to solve problems. It differs from the lower levels of application and interpretation in that the teacher must know and teach to the students the rules for reaching valid conclusions. The analysis question, in the strictest sense, is a little more difficult to use in the classroom, but teachers should become aware of the reasons for using it:

1. To teach students to reason from the specific to the general (induction)

2. To teach students to reason from generalizations to specific instances (deduction)
3. To teach students to recognize and identify fallacies or common mistakes in reasoning

The analysis question is usually posed in a way that would approximate the way the problem would be encountered outside of the classroom. The students may be presented with an example of reasoning and instructed to analyze it.

Example: "President Johnson will never be rated a superior president. He has not ended the Viet Nam war; he has established a credibility gap. Why is this conclusion valid or invalid?"

Level VI--Synthesis

Synthesis is defined as solving a problem that requires original, creative thinking. The synthesis question offers to the student more freedom than is found in any previous level of thinking, since it is not limited to the subject matter or particular processes that are stated or implied in the question. The student finds himself faced with a problem that offers a variety of possibilities from which he may derive many satisfactory answers (divergent thinking). In order to arrive at these answers, the student is encouraged to use whatever information or thought processes that he can summon. When synthesis questions are used, it is important that the atmosphere of the classroom be such that the students know that the teacher does not have an answer in mind which the student is expected to duplicate.

Example: "Based on your knowledge, how can the President of the United States make a contribution to our republic and still extricate us from the Viet Nam war?"

Level VII--Evaluation

In evaluation a student makes an assessment of good or bad, right or wrong, etc., according to his own standards. In order for a question to qualify for this level of thinking, two characteristics must be present:

1. The student must set up appropriate standards.
2. The student must determine whether or not the object or idea in question meets those standards.

Before a student can properly evaluate, he must have preparation that falls primarily in the memory and interpretation levels of thinking but which also includes all other levels. The student must also know something about the nature of values. Unlike information, values cannot always be determined to be true or false; therefore, in evaluation, information and values cannot be treated in the same manner.

Example: "What characteristics do you feel a superior president should have? Have the last two presidents been superior?"

Levels of Thinking	Teaching Goals	Student Behavior
1. Memory	To have student know factual material	Recall facts as given
2. Translation	To have students demonstrate understanding of factual material	1. State given information in one's own words 2. Give definition for terms used in light of student's former experience.
3. Interpretation	To have students show relationships between facts.	1. Determine whether ideas and facts are identical, similar, unrelated, different or contradictory (comparisons). 2. Determine ideas which follow from specific evidence (implications). 3. Show relationship of generalization to its supporting evidence. 4. Show relationship of value, skill or definition to an example of its use.
4. Application	To have students solve problems using previous knowledge.	Use previously learned materials or skills in new situations.
5. Analysis	To have students examine facts in order to solve problems.	1. Reason from the specific to the general (inductive thinking). 2. Reason from the general to the specific (deductive thinking).
6. Synthesis	1. To have students examine alternative methods of solving problems 2. To offer students freedom in selection of solutions	Bring together all facts to offer many possible solutions to given problems.
7. Evaluation	To have students make an assessment of value according to their own standards.	1. Set up appropriate standards. 2. Determine whether ideas or objects meet the standards as set up.

Now that the different levels of thinking which can result from various types of questions have been identified, two processes which help in the development of these levels of thinking are discussed.

Probing Questions

Probing questions are used to prompt, to help students initially respond, or to help students go beyond their first response (these responses may fall into any of the seven levels of thinking). Any time that a student response is made, whether it is entirely wrong or just partially right; by probing, a teacher can often discover errors in the student's thinking that led him to his answer.

Example: "Jim, how long did it take the man in the story to drive from his house to the place of the crime?--O.K., if it took him one hour at the minimum, then how could he have committed the crime when he was seen at this home just fifteen minutes before the crime took place?"

Clarifying Questions

Clarifying questions are those questions used to gain a common understanding of a statement or idea. In any class discussion it is not unusual to find a number of participants who do not understand what a fellow student or the teacher has said or to find participants who think they understand, when in fact their interpretation of what has been said is far from what was intended. The clarifying question can be very helpful in avoiding such misunderstanding or lack of understanding.

Examples: Always in a supportive, encouraging way a teacher may:

1. Ask a student to explain a little more fully what he is saying. "Jim, what you have said is a good point. Could you help us by explaining your ideas a little more fully?"
2. Ask a student to define in his words a few key points. "Jim, it will help us to understand more fully if you will tell us what you mean by ------."
3. Ask a participants to give an example or a "for instance." "Bill, what Jim just said is important for us to understand. Could you help us be sure we aren't misinterpreting what he said by giving us an example?"
4. Ask a member of the class to explain in his words what was just said. "Bill, what Jim said is an important thought. Could you help us be sure we understand what Jim meant by explaining what you thought he said?"

These are only some of a number of probable examples of how a teacher might ask Clarifying Questions for the purpose of gaining common understanding in a class discussion. It is most important that in the process of asking Clarifying Questions, the teacher does notimply that a student's statement is not worthy.

Using Student Ideas

The teaching skill "using student ideas" can be defined as restatement, clarification, building or development of ideas expressed by a student. This skill can range from simple restatement or repetition of the student's respons to an elaborate development of that response. The principal reasons for using students' ideas are:

1. To motivate students to learn
2. To help students have self-respect and confidence
3. To help students become more self-directed
4. To help students examine ideas
5. To help students become inquirers
6. To help students solve problems
7. To help students become more self-disciplined

The teacher who uses students' ideas will either build discussion or ask questions based on a student's response. There are few student responses which are so far wrong that they cannot be used as a basis for further discussion or another question. The teacher should always deal with student responses as given.

Example: "John has just said that highways being built through out large cities do more harm than good. This is a most interesting comment. There are many people who agree with John on this. Why?"

"In keeping with John's ideas about the harm highways do to our large cities, what have some cities done about the problems?"

Possible Student Behaviors

The Student	Observable Student Behaviors
1. is motivated a. to learn b. to like school better	1. expresses his interest 2. seeks tasks 3. initiates activities 4. tries alternative solutions 5. seeks help 6. involves himself in classroom conversation
2. solves problems	1. articulates problems and initiates solutions 2. asks questions of self and others 3. recognizes the possibility of alternative solutions 4. relates problems to past experiences 5. accepts or rejects ideas based on evidence
3. examines ideas	1. presents ideas and theories 2. seeks new and different experiences 3. accepts or rejects ideas based on evidence 4. relates new ideas to previous knowledge 5. asks relevant questions
4. becomes an inquirer	See #3 (examines ideas)
5. respects self	1. helps others 2. exhibits willingness to take risks 3. see #3 (examines ideas)
6. is capable of self-direction	1. weighs the evidence and makes choices 2. challenges ideas 3. sets performance standards for himself 4. initiates activities 5. seeks new and different experiences
7. is self-disciplined	1. sets performance standards for himself 2. makes considered choices 3. perseveres in carrying out a task

GPO 813-526-6

Accepting Student Feeling

Any act or statement which recognizes the feelings of students without expressing teacher judgment can be called 'accepting student feeling.' This teaching skill will be used less, in the average classroom, that will any other skill we discuss because the opportunity to use it rarely arises. Many students, with good reason, are reluctant to expose their feelings to teacher scrutiny. Therefore, it is the task of the teacher to foster the kind of classroom climate in which students can express their feelings without fear of ridicule. The teacher who does this will:

1. verbally and non-verbally accept student expression of feelings without placing judgment on them;
2. listen attentively to students;
3. allow, and in fact encourage, student expression of feeling.

Examples: "I know how you feel about what happened last night. Hand your homework in when you get a chance to finish it."

"I understand your disappointment. The same thing happened to me last week. I will tell you about it after class."

Possible Student Behaviors	
The Student	Observable Student Behaviors
1. is motivated to learn	1. expresses feeling openly 2. initiates activities and ideas 3. tries alternative solutions 4. seeks help 5. shows interest 6. expresses ideas
2. helps others	1. listens to ideas of others 2. accepts others 3. accepts others' ideas
3. respects self	1. is willing to take risks 2. presents ideas and theories 3. seeks new and different experiences 4. relates old knowledge to previous experiences 5. asks relevant questions
4. communicates better	1. verbalizes questions, ideas, beliefs, concerns, feelings, intentions, plans 2. defines terms 3. clarifies ideas 4. listens and responds

Praising and Encouraging Students

This skill is defined as verbal approval of an action or idea which is perceived by students as praise or encouragement. The important part of this definition is "...which is perceived by students as praise or encouragement." The foregoing definition virtually eliminates a good portion of the praising or encouraging remarks often made by teachers. Teacher remarks like 'good,' 'fine,', 'OK,' or 'beautiful,' can be used so often by a teacher that students ignore the intent. Praise and encouragement should be used sincerely so that--

1. students will be motivated to learn;
2. students will be motivated to verbally participate;
3. students will exhibit more independence and self-direction;
4. students' self-concepts will improve.

Examples: "Joe has just suggested an exciting way to demonstrate that air expands with heat. I wish I had that good an imagination."

"Thanks to Joe and his suggestion, we can demonstrate how air expands when heated. Thanks, Joe."

"Yesterday when I was talking to Bill after school, he told me some of the most interesting facts concerning our city. Many of these facts I was completely unaware of. Will you share this information with us, Bill?"

Possible Student Behaviors	
The Student	Observable Student Behaviors
1. is motivated a. to learn b. to be industrious c. to verbally participate	1. expresses his interest and ideas 2. seeks tasks 3. initiates more activities 4. finds alternative solutions 5. accepts help
2. improves self-concept	1. helps others 2. accepts the risk of expressing own ideas 3. seeks new and different experiences 4. articulates problems and possible solutions
3. exhibits more independence, self-direction	1. sets his own performance standards 2. weighs the evidence and makes choices 3. See #2 (improves self-concept)

Establishing Set

Establishing set is defined as providing readiness and rapport for student involvement in the lesson. In other words, 'set' sets the stage or provides an introduction for the lesson that follows. In establishing set, a teacher may--

1. state the goals of the lesson;
2. state behavioral outcomes expected of the students;
3. relate new material to students' previous knowledge
4. relate new material to previous student experiences;
5. state the sequence of activities expected of the students.

Example: "For the next thirty minutes I would like the class to divide into four groups. The purpose of each group will be to create a list of factors which should be considered in deciding whether to work while attending school. At the end of the thirty minutes each student is to be prepared to present one factor to the total class. If we can finish this today, we will be ready to start playing a simulated game on high school life. I think you will find this game one of the most exciting things we have done..."

Possible Student Behaviors	
The Student	Observable Student Behaviors
1. is motivated	1. expresses his interest 2. seeks tasks 3. initiates activities 4. tries alternative solutions 5. seeks help
2. is receptive to lesson	1. relates new knowledge to past experience 2. asks relevant questions 3. looks for alternative solutions 4. accepts direction from teacher 5. initiates activities 6. uses strategies as defined by teacher, self
3. is ready to listen	1. exhibits attentive behavior 2. responds to questions 3. challenges ideas that differ from his own (clarification of others' ideas)

Achieving Closure

Closure is the pulling together of major purposes, principles, and content of a lesson so that students can relate new knowledge and experiences to past knowledge and experiences as well as build for future learning. Closure is not only achieved at the end of a lesson but also at various points in the lesson as it is needed. It helps greatly to give order to what goes on in the classroom.

Example: "For the last hour we have been discussing the factors that influence weather changes. For the next five minutes, let's pull together the major factors and list them on the board."

Effective closure can lead to the creation of set for the next lesson.

Example: "Now that we have a list of the factors that have a major influence on weather change, let's select two to demonstrate for tomorrow."

Possible Student Behaviors

The Student	Observable Student Behaviors
1. solves problems	1. asks questions of self and others 2. recognizes the possibilities of alternative solutions 3. relates problems to past experiences 4. accepts and rejects ideas based on evidence
2. is motivated for future learning	1. seeks new tasks, experiences, and ideas 2. seeks help 3. examines ideas 4. is willing to take risks 5. weighs evidence and makes choices 6. sets his own performance standards

Encouraging and Controlling Student Participation

This skill is defined as actively involving students in the lesson and directing their contributions toward the goal of the lesson. Perhaps we should call this a 'composite' skill because it is necessary to use most of the previously discussed skills in order successfully to have meaningful student participation.

1. The teacher should establish set.
2. The teacher should ask questions that require more than just factual answers.
3. The teacher should deal with student responses by using their ideas, praising and/or encouraging the students, or reinforcing their answers.
4. The teacher should achieve closure so that students can relate the new material to past knowledge and experiences.

Example: "That is an interesting idea, Dave, but before we discuss it, let's stay on this topic a few more minutes."

Possible Student Behaviors

The Student	Observable Student Behaviors
1. is motivated to learn	1. expresses his ideas 2. seeks new ideas 3. asks questions which are relevant and significant to the lesson 4. seeks clarification of his own and others ideas
2. is an inquirer	1. presents ideas and theories 2. seeks new and different experiences 3. accepts or rejects ideas based on evidence 4. relates new knowledge to past experiences 5. asks questions and offers possible solutions

Providing Feedback to Students

This skill, which can also be called "reinforcement," is defined as providing information to students so that they will know how they are perceived by the teacher and their peers. Students need to know whether or not they are making satisfactory progress, in what specific areas they could use additional help and how they should go about getting that help. The teacher who provides feedback to the students---

1. relates individual or class progress to stated goals;
2. offers verbal praise or encouragement to students;
3. accepts the feelings of students;
4. uses students' ideas.

It is important that the teacher use this skill in a direct but non-threatening way. After suggestions are made to students for a particular situation, the teacher should follow-up these suggestions by evaluating the progress that the students are making with the problem.

Example: "Pat, four of these answers are wrong and all for the same reason. Let me help you with the subtraction step, and you'll find them easy to correct."

Possible Student Behaviors	
The Student	Observable Student Behaviors
1. is motivated to learn	1. expresses his interest 2. seeks tasks 3. initiates activities 4. tries alternative solutions 5. seeks help
2. communicates better	1. verbalizes questions, feelings, beliefs 2. defines terms 3. clarifies ideas 4. listens and responds
3. solves problems	1. articulates problems and initiates solutions 2. asks questions of self and others 3. recognizes the possibility of alternative solutions 4. relates problems to past experiences 5. accepts or rejects ideas based on evidence
4. is receptive to lesson	1. relates new knowledge to past experiences 2. asks relevant questions 3. looks for alternative solutions 4. accepts direction from teacher 5. initiates activities 6. states goals as defined by teacher and self
5. feels self-worth	1. helps others 2. expresses interest 3. makes considered choices 4. challenges ideas 5. accepts risks 6. participates

Class Reaction Forms

The class reaction forms that follow are designed to be used with the MOREL teaching skills as one method of securing student feedback on the effectiveness of the teacher's execution of a particular skill. Teachers who have used these forms have found that the graphic picture of student responses is extremely useful in finding out exactly what students are feeling or thinking.

These reaction forms have been used with two groups of teachers and therefore would require more field testing before their reliability or validity could be established; therefore they should be used as a model, rather than as a finished product. Because these forms are reproduced in a continuous manner rather than a page for each form, the user will need to reproduce them as separate instruments.

The contents of this section are:

1. Procedures for Using Class Reaction Forms
2. Graph for Class Reaction Data
3. Class Reaction Forms
    - IA Asking Questions to Raise or Lower the Level of Thinking
    - IB Asking Probing Questions
    - IC Asking Clarifying Questions
    - II Using Student Ideas
    - III Accepting Student Feeling
    - IV Praising and Encouraging Students
    - V Establishing Set
    - VI Achieving Closure
    - VII Encouraging and Controlling Student Participation
    - VIII Providing Feedback to Students

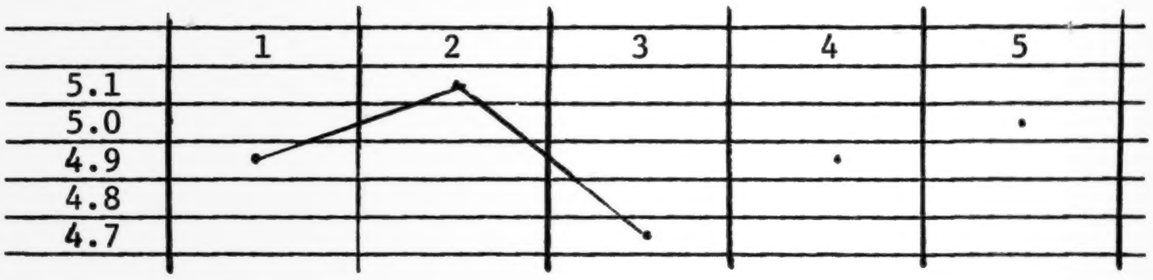
Procedures for Using Class Reaction Forms

The class reaction form is administered immediately after the skill has been practiced by the teacher, and the student responses are recorded on a seven point Likert-type scale. To compute and graph the class response, numbers one through seven are assigned to the scale in the following manner[1]:

/____/____/____/____/____/____/____/
1 2 3 4 5 6 7

All of the response scores for a particular question are added together and divided by the number of responses. The quotient, which will fall between one and seven, is then entered into the graph at the appropriate place.

Example: Student responses to Question 1--103
Number of students responding -- 21
Quotient -- 4.9



The same procedure is used for each question in the reaction form.

[1] The number values on the scale are reversed for those questions on reaction forms which are preceded by an asterisk. On reaction form II, question 5 is an example--"During this class, the teacher rejected my idea." The desired answer is at the negative end of the scale. Therefore by reversing the value on the scale, (/ 7 / 6 / 5 / 4 / 3 / 2 / 1 /), will make the graph consistent, i.e., desired behaviors will always appear at the top of the graph.

Date____________________

Class Reaction Form IA

Please mark in spaces - /_x_/
rather than on line - ✗__/

1. The teacher's questions helped me see how I needed several examples to prove a point.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

2. The teacher's questions showed how opposite examples can show that an argument is wrong.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

3. The teacher's questions helped me see that logic can build or destory an argument by the way it explains the example.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

4. The teacher rephrased our statements and questions to make us think more clearly about what they meant.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

5. The teacher's questions were very clear.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

6. The teacher's questions made me think about how to use ideas

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

7. The teacher's questions were asked in such a way that I was encouraged to use my own words to describe the things I was doing.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

8. The teacher's questions helped me think about how the facts related to the problem.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

9. The teacher's questions were related to the subject.

   Not at all   Some   Very much
   /___/___/___/___/___/___/___/

10. The teacher's questions helped me think about problems which are really important.

    Not at all   Some   Very much
    /___/___/___/___/___/___/___/

Date____________________

Class Reaction Form IA (Con't)

11. The teacher's questions helped me think of original ways to solve the problem we had agreed upon.

Not at all Some Very much

/____/____/____/____/____/____/____/

12. The teacher's questions helped me decide whether the things we agreed upon were good or bad.

Not at all Some Very much

/____/____/____/____/____/____/____/

Class Reaction Form IB

1. The teacher's questions were very clear.

Not at all Some Very much

/____/____/____/____/____/____/____/

2. The teacher's questions were related to the subject.

Not at all Some Very much

/____/____/____/____/____/____/____/

3. The teacher asked us to give examples.

Not at all Some Very much

/____/____/____/____/____/____/____/

4. The teacher asked us to give evidence (facts to support what we were saying.

Not at all Some Very much

/____/____/____/____/____/____/____/

5. The teacher rephrased his questions to make them clearer.

Not at all Some Very much

/____/____/____/____/____/____/____/

6. The teacher rephrased our statements and questions to help us think more clearly about what they meant.

Not at all Some Very much

/____/____/____/____/____/____/____/

7. The teacher's questions showed that he understood how we feel about things.

Not at all Some Very much

/____/____/____/____/____/____/____/

8. The teacher listened carefully to us.

Not at all Some Very much

/____/____/____/____/____/____/____/

Class Reaction Form IB (con't)

9. The teacher used our ideas to build the discussion and to develop new ideas.
Not at all Some Very much
/___/___/___/___/___/___/___/

10. The teacher's questions led the discussion into things most of us were interested in.
Not at all Some Very much
/___/___/___/___/___/___/___/

11. It was very easy for us to follow the discussion.
Not at all Some Very much
/___/___/___/___/___/___/___/

Class Reaction Form IC

1. The teacher helped to clear up our ideas by asking one student what he thought another student's statement meant.
Not at all Some Often
/___/___/___/___/___/___/___/

2. The teacher helped clear up an idea by having a student ask another student what the statement he had just made meant.
Not at all Some Often
/___/___/___/___/___/___/___/

3. The teacher helped to clear up an idea by asking me to repeat what I had just said.
Not at all Some Often
/___/___/___/___/___/___/___/

4. The teacher helped clarify an idea by asking a student to give an example of another student's idea.
Not at all Some Often
/___/___/___/___/___/___/___/

5. The teacher helped to clear up an idea by asking a student to explain his thought in more detail.
Not at all Some Often
/___/___/___/___/___/___/___/

6. The teacher's questions were very clear.
Not at all Some Often
/___/___/___/___/___/___/___/

7. The teacher's questions were related to the subject.
Not at all Some Often
/___/___/___/___/___/___/___/

8. The teacher's questions were asked in such a way that I wanted to answer them.
Not at all Some Very much
/___/___/___/___/___/___/___/

Class Reaction Form IC (con't)

9. The teacher's questions were asked in such a way that I wanted to answer them.

Not at all Some Very much

/___/___/___/___/___/___/___/

Class Reaction Form II

1. During this class, I took part in the discussion.

Not at all Some A great deal

/___/___/___/___/___/___/___/

2. During this class, the teacher took my idea and restated it.

Not at all Part of the time Always

/___/___/___/___/___/___/___/

3. During this class, the teacher took my idea and made it clearer (by reworking it or asking me questions).

Not at all Part of the time Always

/___/___/___/___/___/___/___/

4. During this class, the teacher built on my idea.

Not at all Part of the time Always

/___/___/___/___/___/___/___/

*5. During this class, the teacher rejected my idea.

Not at all Part of the time Always

/___/___/___/___/___/___/___/

*6. During this class, the teacher ignored my idea.

Not at all Part of the time Always

/___/___/___/___/___/___/___/

Class Reaction Form III

1. During this class, I took part in the discussion.

Not at all Some A great deal

/___/___/___/___/___/___/___/

2. During this class, the teacher paid attention to my feelings.

Not at all Some A great deal

/___/___/___/___/___/___/___/

3. During this class, the teacher showed that he understood and accepted my feelings by what he said

Not at all Some A great deal

/___/___/___/___/___/___/___/

Class Reaction Form III (con't)

4. During this class, the teacher showed that he understood and accepted my feelings without saying anything.

Not at all Some A great deal

/___/___/___/___/___/___/___/

5. During this class, the teacher gave me a chance to show my feelings.

Not at all Some A great deal

/___/___/___/___/___/___/___/

Class Reaction Form IV

1. During this class, I took part in the discussion.

Not at all Some A great deal

/___/___/___/___/___/___/___/

2. During this class, the teacher praised me by what he said.

Not at all Some Always

/___/___/___/___/___/___/___/

3. During this class, the teacher joked about what I said in a way that made me feel good.

Not at all Some Always

/___/___/___/___/___/___/___/

4. During this class, the teacher encouraged me to say more about my ideas.

Not at all Some Always

/___/___/___/___/___/___/___/

5. During this class, the teacher made me feel good about my ideas by using them again in the discussion.

Not at all Some Always

/___/___/___/___/___/___/___/

Class Reaction Form V

1. The teacher told us what the purpose(s) of the lesson were.

Not at all Some Often

/___/___/___/___/___/___/___/

2. The teacher showed us how the new material was related to things we already knew.

Not at all Some Often

/___/___/___/___/___/___/___/

3. The teacher showed us how the new material was related to our experiences.

Not at all Some Often

/___/___/___/___/___/___/___/

Class Reaction Form V (con't)

4. The teacher got me interested enough to want to take part.

Not at all Some Very much

/___/___/___/___/___/___/___/

5. I took a part in today's discussion.

Not at all Some Very much

/___/___/___/___/___/___/___/

Class Reaction Form VI

1. During this class, the teacher summed up the lesson and showed how it was related to things we already know.

Not at all Some Very much

/___/___/___/___/___/___/___/

2. The teacher's summary of the lesson helped me understand what we are learning.

Not at all Some Very much

/___/___/___/___/___/___/___/

3. The teacher's summary of the lesson helped me understand what I should do next.

Not at all Some Very much

/___/___/___/___/___/___/___/

4. I took part in today's discussion.

Not at all Some Very much

/___/___/___/___/___/___/___/

Class Reaction Form VII

1. In this class, I took part in the discussion.

Not at all Some Very much

/___/___/___/___/___/___/___/

2. The teacher did things to get me involved in the class activities.

Not at all Some Very much

/___/___/___/___/___/___/___/

3. The teacher helped me keep what I was doing related to the goals of the class activity.

Not at all Some Very much

/___/___/___/___/___/___/___/

4. It wouldn't have mattered what the teacher did; I would have taken part anyway.

Not at all Some Very much

/___/___/___/___/___/___/___/

Class Reaction Form VIII

1. I took part in the discussion. Not at all Some A great deal

/___/___/___/___/___/___/___/

2. The teacher showed us how our class was making progress toward the goals of the lesson. Not at all Some Very much

/___/___/___/___/___/___/___/

3. The teacher helped us feel good about our progress. Not at all Some Very much

/___/___/___/___/___/___/___/

4. The teacher showed me how I was making progress toward the goals of the lesson. Not at all Some Very much

/___/___/___/___/___/___/___/

5. The teacher helped me feel good (better) about my progress. Not at all Some Very much

/___/___/___/___/___/___/___/

6. Because the teacher praised me, I felt good about my progress. Not at all Some Very much

/___/___/___/___/___/___/___/

7. The teacher made me feel rewarded by the way he spoke about the work I did and the things I said. Not at all Some Very much

/___/___/___/___/___/___/___/

Appendix I

STUDENT FEEDBACK

Introduction

Student Feedback is used in the MOREL Teaching Behavior Improvement Program as one technique designed to provide the teacher with objective information about the effectiveness of his teaching behavior. It is our belief that the student is in a prime position from which to judge teacher effectiveness, for it is the student who is the recipient of teaching behavior as well as being the one person most familiar with the teacher over time.

The problem facing teachers is how to systematically and objectively gain information from students that can be ordered and used in such a way as to be helpful in improving teaching effectiveness. The materials in this Appendix are addressed to this problem and are designed for use by teachers who wish to collect and analyze student perceptions objectively.

It has been our experience that the sample instruments which follow can be used effectively with students from fourth grade up. When using written reaction forms with fourth, fifth and sixth grade students, it is helpful to read the questions to them and explain the meaning of any words they do not understand. Below the fourth grade, all questions must be carefully worded and it may help to use the format found in the section on lower elementary grades under samples of student feedback.

Other than the materials included in this section, the person using this Program will want to create others. For example, to assist teachers in learning to analyze data from student feedback questionnaires, the leader can construct an interpretation packet. This packet could include some dummy Student Opinion Questionnaires, summary graphs and blank sheets for analyzing questions 14 and 15 from the Questionnaire. The teachers' task would be to transfer the data to the graph and develop an analysis of it. Such materials and activities are helpful in helping teachers see the power of student feedback. The user will surely identify other needs for building simple curriculum materials.

This section of the Appendix includes:

1. Procedures for teaching the use of student feedback
2. Sample Student Feedback Instrument - _Some Observations Concerning Written Student Reactions to High School Teachers_
3. Instruction for Temporary Substitute (directions for administering the Student Opinion Questionnaire)
4. Directions for Tabulating and Preparing Feedback for Teachers from Student Opinion Questionnaire
5. Criteria for Constructing and Evaluating Written Student Feedback Instruments
6. Samples of Student Feedback Instruments
7. "Student Feedback: A Summary of Findings from Research" (includes bibliography)

Procedures for Teaching the Use of Student Feedback

Goals	Activities	Materials
1. Provide participants with a rationale for the use of student feedback.	1. Discussion	1. None
2. Provide participants with an understanding of where student feedback fits into the MOREL Improvement Strategy.	2. Discussion in reference to a transparency showing a diagram of the MOREL Improvement Strategy.	2. Transparency of MOREL Improvement Strategy.
3. Provide participants with an understanding of why and how student feedback may be used at various places in the Strategy.	3. Discussion and questions with participants in reference to a transparency of the Strategy.	3. Transparency of MOREL Strategy.
4. Provide participants with an understanding of the relationships which exist between questions on the Student Opinion Questionnaire and the categories in Flanders' coding system.	4. Discussion with participants concerning the relationships between student ratings and the categories in Flanders' coding system. What kind of coding patterns would be related to various student ratings?	4. Teachers should have for reference The Role of the Teacher in the Classroom, and a copy of the Student Opinion Questionnaire.
5. Provide participants with a working familiarity of Bryan's Student Opinion Questionnaire.	5. Participants will use a set of eight completed sample Student Opinion Questionnaires from which they will tabulate, summarize and graph the data in preparation for analysis.	5. Set of eight completed sample Student Opinion Questionnaires. Directions for tabulating and preparing feedback for teachers from Student Opinion Questionnaire.

Goals	Activities	Materials
6. Provide participants with a set of criteria with which to evaluate and construct Written Student Feedback Instruments.	6. Distribute and discuss a one page set of criteria from which to evaluate and construct Written Student Feedback Forms.	6. Criteria for constructing and evaluating Written Student Feedback Forms.
7. Provide participants with various models of Written Student Feedback Instruments designed for specific purposes.	7. Distribute and discuss a collection of Sample Student Feedback Instruments designed for specific purposes.	7. Samples of Student Feedback Instruments.
8. Provide participants with research findings related to the use of student feedback.	8. Distribute and discuss a short summary of research findings related to the use of written student feedback.	8. "Student Feedback: A Summary of Findings from Research."

SOME OBSERVATIONS CONCERNING WRITTEN STUDENT REACTIONS TO HIGH SCHOOL TEACHERS *

1967-68 Annual Report By Roy C. Bryan,
Director of the Student Reaction Center,
School of Education, Western Michigan University

The topics treated in this sixth annual report are:

Page

- The Student Opinion Questionnaire 2
- Students' Image of One Teacher 4
- Students' Image of Eight Teachers 6
- Students Desire Good Instruction 8
- Written Student Reactions Benefit Many Teachers 10
- Written Student Reactions and Criteria of Teacher Effectiveness . . 11
- One Obstacle to the Use of Image Reports 12
- Questions and Answers Concerning the Service 13
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- Service Order Form 15

NOTE: Additional copies of this bulletin are available for twenty cents each

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STUDENT-OPINION QUESTIONNAIRE

(Form A)

Please answer the following questions honestly and frankly. Do not give your name. To encourage you to be frank, your regular teacher should be absent from the classroom while these questions are being answered. Neither your teacher nor anyone else at your school will ever see your answers.

The person who is temporarily in charge of your class will, during this period, collect all reports and seal them in an envelope addressed to Western Michigan University. Your teacher will receive from the University a summary of the answers by the students in your class. The University will mail this summary to no one except your teacher unless requested to do so by your teacher.

After completing this report, sit quietly or study until all students have completed their reports. There should be no talking.

Underline your answers to questions 1-13. Write your answers to questions 14 and 15.

WHAT IS YOUR OPINION CONCERNING THIS TEACHER'S:

1. KNOWLEDGE OF SUBJECT: Does he have a thorough knowledge and understanding of his teaching field?

Below Average	Average	Good	Very Good	The Very Best

2. CLARITY OF EXPLANATIONS: Are assignments and explanations clear?

Below Average	Average	Good	Very Good	The Very Best

3. FAIRNESS: Is he fair and impartial in his treatment of all students?

Below Average	Average	Good	Very Good	The Very Best

4. CONTROL: Does he keep enough order in the classroom? Do students behave well?

Below Average	Average	Good	Very Good	The Very Best

5. ATTITUDE TOWARD STUDENTS: Is he patient, understanding, considerate, and courteous?

Below Average	Average	Good	Very Good	The Very Best

6. ABILITY TO STIMULATE INTEREST: Is this class interesting and challenging?

Below Average	Average	Good	Very Good	The Very Best

7. ATTITUDE TOWARD SUBJECT: Does he show interest in and enthusiasm for the subject? Does he appear to enjoy teaching this subject?

Below Average	Average	Good	Very Good	The Very Best

8. ATTITUDE TOWARD STUDENT OPINIONS: Are the ideas and opinions of students treated with respect? Are differences of opinion welcomed even when a student disagrees with the teacher?

Below Average	Average	Good	Very Good	The Very Best

9. VARIETY IN TEACHING PROCEDURES: Is much the same procedure used day after day and month after month, or are different and appropriate teaching methods used at different times (student reports, class discussions, small-group discussions, films and other audio-visual aids, demonstrations, debates, field trips, teacher lectures, guest lectures, etc.)?

Below Average	Average	Good	Very Good	The Very Best

10. ENCOURAGEMENT OF STUDENT PARTICIPATION: Do students feel free to raise questions and express opinions? Are students encouraged to take part?

Below Average   Average   Good   Very Good   The Very Best

11. SENSE OF HUMOR: Does he see and share with students amusing happenings and experiences?

Below Average   Average   Good   Very Good   The Very Best

12. PLANNING AND PREPARATION: Are plans well made? Is class time well spent? Is little time wasted?

Below Average   Average   Good   Very Good   The Very Best

13. ASSIGNMENTS: Are assignments (out-of-class, required work) sufficently challenging without being unreasonably long? Is the weight of assignments reasonable?

Much too light   Too light   Reasonable   Too heavy   Much too heavy

14. Please name two or more things that you especially like about this teacher or course.

15. Please give two or more suggestions for the improvement of this teacher or course.

Note on Reliability of Questionnaire Items

When the averages of student responses from chance halves of 50 randomly selected classes taught by 50 secondary-school teachers (grades 7-12) were correlated, the reliability coefficients obtained for the first 12 questions are:

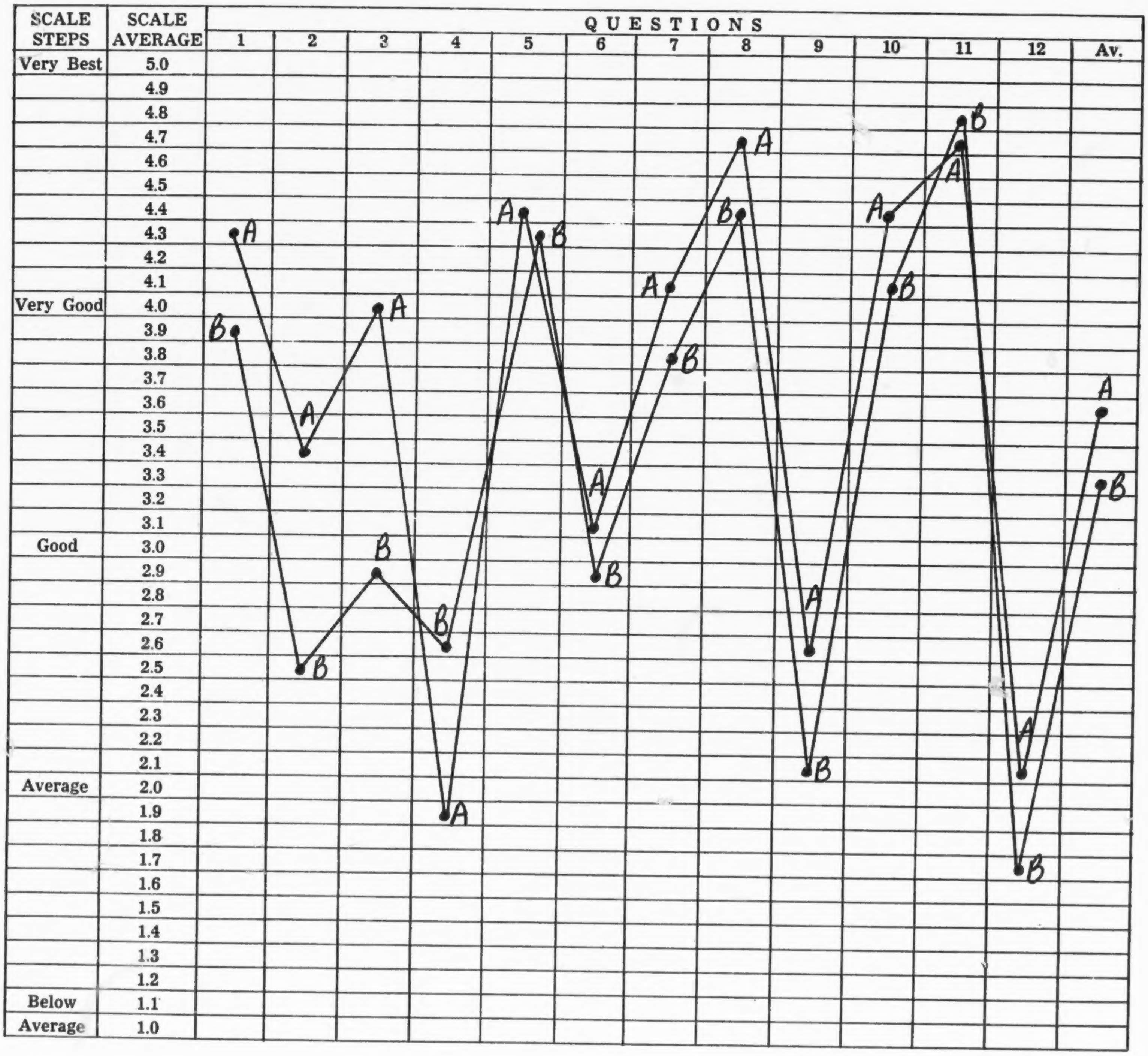
(1) .87   (2) .82   (3) .84   (4) .95   (5) .88   (6) .87

(7) .90   (8) .86   (9) .91   (10) .77   (11) .91   (12) .90

These indicate the reliability coefficients of the questions when answered by 24 to 32 students per class. The correlation coefficients for the chance halves were converted to the reported coefficients for whole classes by means of the Spearman-Brown formula for computing test reliability.

IMAGE REPORT OF ONE TEACHER

This is a copy of the image report that was sent to one teacher during the last school year. The report is based on the questionnaire responses of students in one class of 17 students and another class of 15 students.



KEY TO QUESTIONS

1. Knowledge
2. Explanations
3. Fairness
4. Control
5. Attitude toward students
6. Interest
7. Attitude toward subject
8. Attitude toward student opinions
9. Variety
10. Student participation
11. Sense of humor
12. Planning

Av.=Mean of averages 1-12

CLASS A

HOW STUDENTS ANSWERED THE QUESTION ON WEIGHT OF ASSIGNMENTS:

Much too light 0, Too light 0, Reasonable 17, Too heavy 0, Much too heavy 0. Total number of students 17.

THINGS STUDENTS ESPECIALLY LIKE ABOUT THIS TEACHER OR COURSE:

She understands and helps students...She doesn't have favorites...She is very fair and asks our opinions about everything...Understanding of the problems of the students, sense of humor...Freedom of expression...Kind, considerate...She acts as though she is interested in us...Her fairness...She is kind and understanding, willing to help when your need it...She seems to like her students, she is understanding...She is understanding. Good sense of humor, knows her subject well, listens to our opinions...The teacher is very fair...

SUGGESTIONS FOR IMPROVEMENT:

The class time could be planned a little better...Not enough control over the class,.It is not challenging...She doesn't discipline the class nearly enough... Better control...To waste a little less time and to control the class...To control the class...Make the class behave and not waste so much time...I feel a better class plan could be developed...Keep the class in a little better order...I think we don't use all of the class time to the fullest extent...

CLASS B

HOW STUDENTS ANSWERED THE QUESTION ON WEIGHT OF ASSIGNMENTS:

Much too light 1, Too light 0, Reasonable 13, Too heavy 1, Much too heavy 0. Total number of students 15.

THINGS STUDENTS ESPECIALLY LIKE ABOUT THIS TEACHER OR COURSE:

She listens to our opinions and tries to understand how we feel...She really understands us...She is considerate and understanding...The teacher is very understanding ...The teacher is understanding...She cares for the students...She is understanding ...The teacher is very understanding, she sympathizes with us...Sympathetic toward our problems...I like the fact that she tries to understand our problems...

SUGGESTIONS FOR IMPROVEMENT:

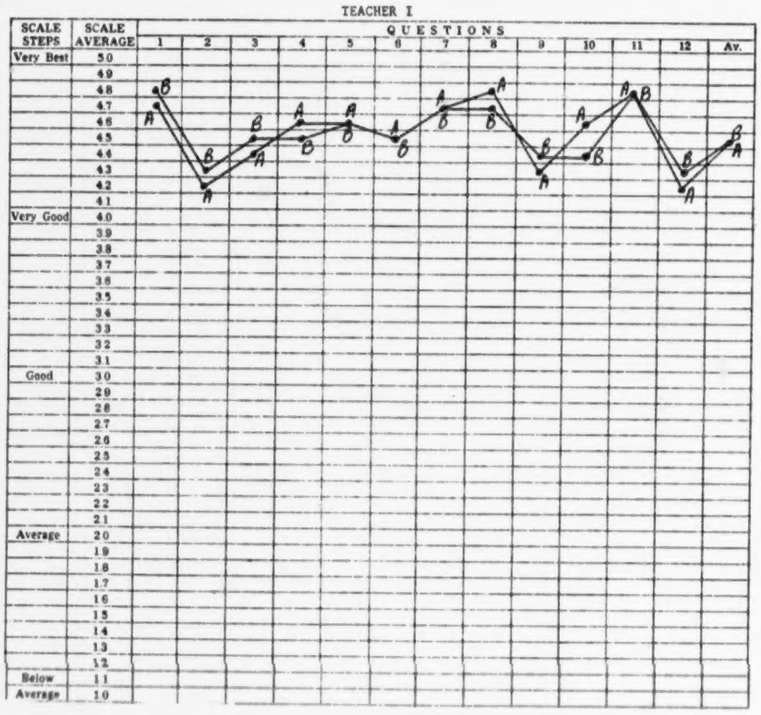
A variety of teaching methods...Better control...The cooperation of the class is not very good. She needs a little bit stricter discipline...Try not to waste time... Perhaps a more thorough explanation of the material...To explain things better... She should use a little more discipline..Don't waste time...We do waste too much time in class...

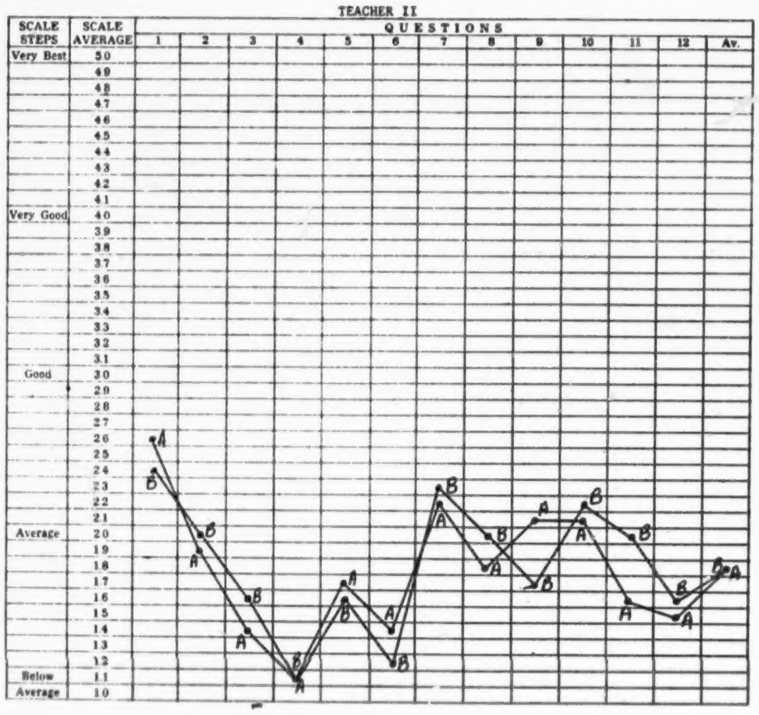
NUMBER OF STUDENTS WHO CHOSE EACH SCALE STEP WHEN ANSWERING EACH QUESTION

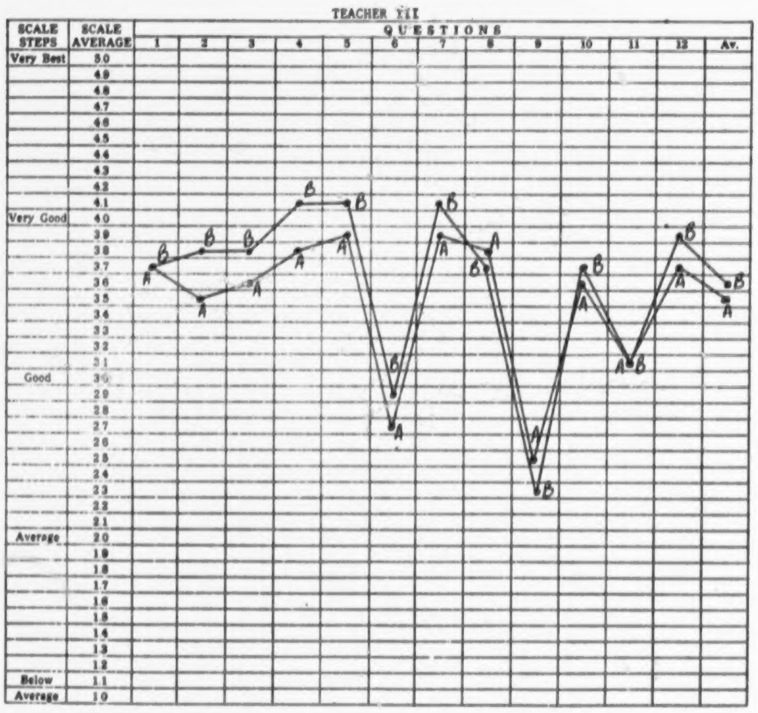
SCALE STEPS	Class A												Class B											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
The Very Best	6	2	7	0	11	1	5	13	1	9	13	0	2	0	1	1	7	1	4	9	0	9	13	0
Very Good	10	5	5	1	2	5	9	3	1	7	3	2	11	1	2	3	6	4	6	4	2	3	1	0
Good	1	8	3	3	4	7	2	1	7	0	1	2	1	9	8	3	2	4	3	1	1	0	1	1
Average	0	2	2	6	0	3	1	0	6	1	0	9	1	2	2	5	0	4	2	1	8	2	0	8
Below Average	0	0	0	7	0	1	0	0	2	0	0	4	0	3	2	3	0	2	0	0	4	1	0	6
Totals	17	17	17	17	17	17	17	17	17	17	17	17	15	15	15	15	15	15	15	15	15	15	15	15

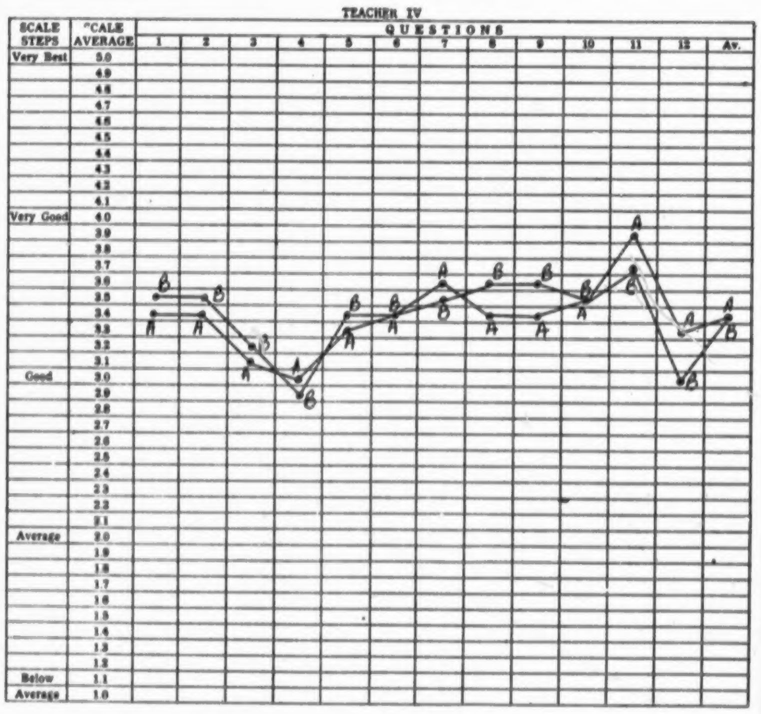
STUDENTS' IMAGE OF EIGHT TEACHERS

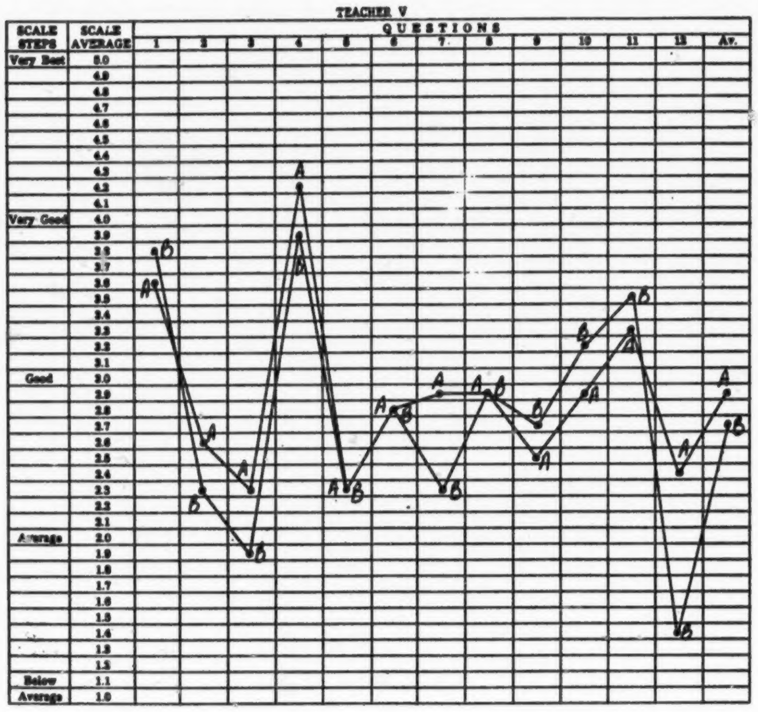
Following is one part of the image report received by each of eight teachers during the last school year. The report of each teacher is based on the questionnaire responses by students in two classes. These graphs show great contrasts in the strengths and weaknesses of different teachers.



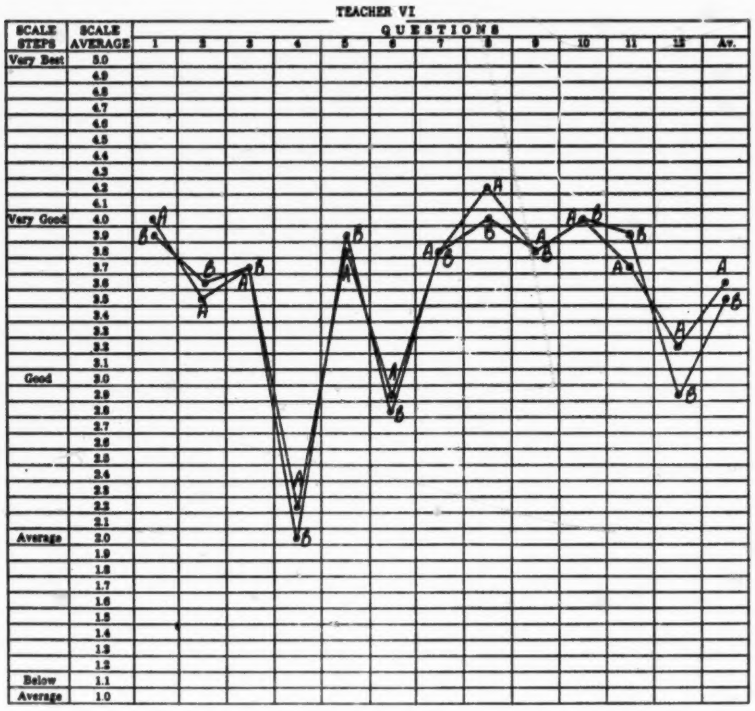




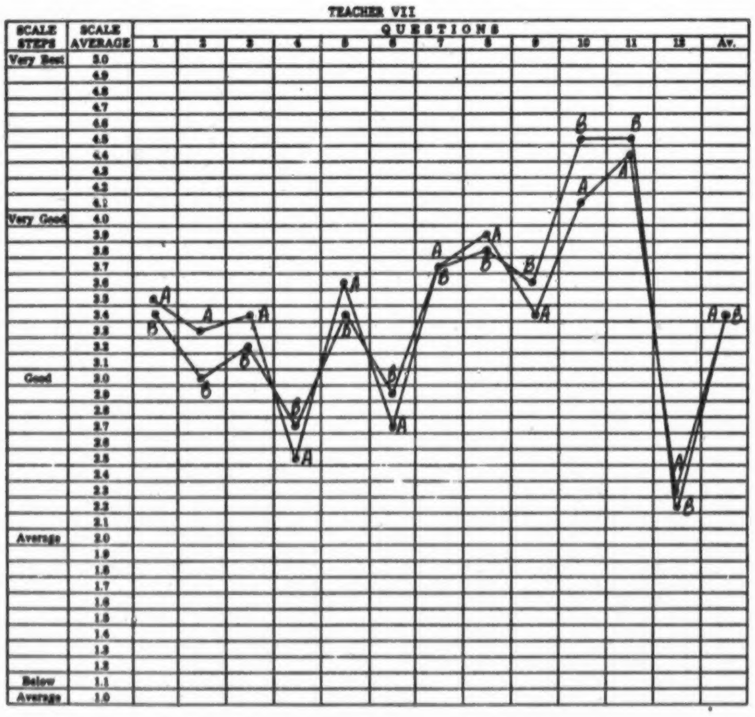




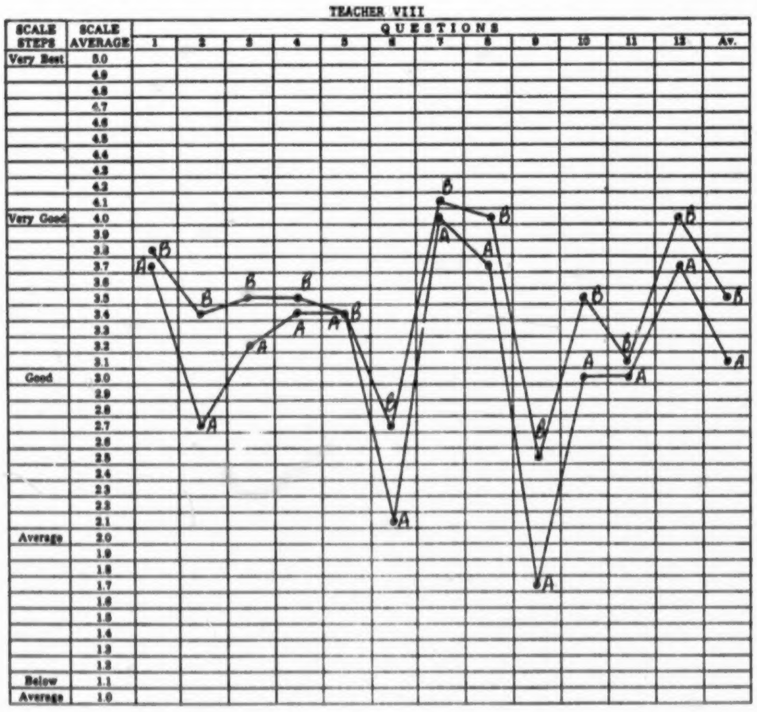
TEACHER V



TEACHER VI



TEACHER VII



TEACHER VIII

STUDENTS DESIRE GOOD INSTRUCTION

High school students will take advantage of teacher weaknesses. If the teacher is weak in control, students will misbehave. If the teacher fails to stimulate interest in accomplishment, many students will take the path of least resistance and accomplish little. But not for long are students confused about what is happening! They know when time is being well spent and they have high esteem for those teachers who best succeed in getting them to do what students know they should do. A common comment about teachers for whom students have low regard is, "Class attendance is a waste of time." A comment made frequently about the highly respected teacher is, "I am really learning something worthwhile in this class and time passes rapidly."

The kind of instruction that students desire is the kind that they can rank high when responding to the items contained in the questionnaire shown on pages 2 and 3. These items identify teacher qualities or behaviors most commonly identified by students as important in the classroom situation. The original version of this questionnaire was based primarily on findings of researchers who sought to identify student perceptions of desirable teacher qualities. Revisions made during the last six years have been dictated primarily by student criticisms of teacher behaviors repeated in the thousands of student feedback reports that have been prepared at the Student Reaction Center.

More experienced teachers fall short of student expectations on question 6 (interest stimulation) and 9 (variety in teaching procedures) than any of the other scaled questions in the questionnaire. Table I, on the next page, shows that the median student-reaction average on these two questions (3.2 and 3.0 respectively) are lower than any of the others. This means that students think too many of their teachers conduct boring classes and that a chief cause is use of the same routine day after day and week after week.

The story is the same for first-year teachers with this addition: too many beginning teachers lack adequate control. Table I shows that the median student-reaction average for first-year teachers is lowest on questions 4 (control), 6 (interest stimulation), and 9 (variety in teaching procedures). On each of these questions, the student-reaction average is 3.0.

The items on which most teachers have least difficulty pleasing students are: 1 (knowledge of subject), 7 (attitude toward subject), and 11 (sense of humor). The data in Table I shows that these are the highest median averages for both experienced (4.0, 4.0, and 3.7 respectively) and inexperienced (3.7, 3.8, and 3.7) teachers.

TABLE I

PERCENTILE DISTRIBUTION OF STUDENT-REACTION AVERAGES RECEIVED BY 300 EXPERIENCED TEACHERS, 200 FIRST-YEAR TEACHERS, AND 200 TEACHERS IN THEIR SECOND OR THIRD YEARS

Percentile	Teacher Group	QUESTION 1	2	3	4	5	6	7	8	9	10	11	12
99	Experienced	4.8	4.5	4.6	4.6	4.7	4.7	4.9	4.7	4.3	4.6	4.9	4.6
	Second-Third	4.6	4.5	4.5	4.4	4.7	4.5	4.8	4.8	4.1	4.6	4.9	4.5
	First Year	4.8	4.6	4.5	4.5	4.7	4.8	4.7	4.8	4.5	4.7	4.9	4.5
75	Experienced	4.3	3.7	3.8	3.9	3.9	3.6	4.3	4.0	3.4	4.0	4.2	[illegible]
	Second-Third	4.0	3.7	3.8	3.7	3.9	3.5	4.2	4.0	3.4	4.0	[illegible]	3.7
	First Year	4.0	3.7	3.7	3.5	3.9	3.5	4.1	3.9	3.4	4.0	[illegible]	[illegible]
50	Experienced	4.0	3.4	3.4	3.5	3.5	3.2	4.0	3.6	3.0	3.6	[illegible]	3.6
	Second-Third	3.8	3.4	3.4	3.3	3.5	3.1	3.9	3.6	3.0	3.6	3.8	[illegible]
	First Year	3.7	3.3	3.2	3.0	3.5	3.0	3.8	3.5	3.0	3.6	3.7	3.4
25	Experienced	3.6	3.0	3.0	2.9	3.0	2.8	3.6	3.2	2.5	3.4	3.2	3.1
	Second-Third	3.5	3.0	2.9	2.8	3.0	2.6	3.3	3.2	2.5	3.4	3.2	3.0
	First Year	3.4	2.7	2.8	2.2	3.0	2.5	3.3	3.1	2.4	3.2	3.1	2.8
01	Experienced	2.4	1.7	1.5	1.2	1.7	1.6	2.2	1.8	1.5	1.5	1.7	1.5
	Second-Third	2.4	1.7	1.7	1.2	1.7	1.7	2.4	2.0	1.4	2.3	2.2	1.7
	First Year	2.3	1.5	1.5	1.2	1.6	1.3	2.2	1.8	1.5	2.1	1.8	1.5

Key to Questions:

1. Knowledge
2. Explanations
3. Fairness
4. Control
5. Attitude toward students
6. Interest stimulation
7. Attitude toward subject
8. Attitude toward student opinions
9. Variety in procedures
10. Student participation
11. Sense of humor
12. Planning

Scale Values:

1.0 = Below Average   2.0 = Average   3.0 = Good   4.0 = Very Good   5.0 = Very Best

Interpret as follows:

On question 1 (knowledge of subject), the highest student reaction average received by an experienced teacher is 4.8 (percentile 99) and the lowest is 2.4 (percentile 1). The median average (percentile 50) received on question 1 is 4.0 for experienced teachers, 3.8 for second and third year teachers and 3.7 for first year teachers. Experienced teachers are those with four or more years of teaching experience.

How close the teachers in this sample represent a cross-section of teachers generally is not known. We can say only that these are teachers representing all subject areas who requested service from the Student Reaction Center.

These generalizations should not obscure the fact that the pattern of highs and lows vary tremendously from teacher to teacher. This point is well illustrated both by the different patterns in the graphs shown on pages 6 and 7 and by the range in the student-reaction averages shown in Table I, page 9.

Teacher performance that students like to see differs little from that which administrators like to see in the classroom. The data presented in the 1966-67 report by the Student Reaction Center show that the great majority of administrators expected their judgments on the different questionnaire items to be in agreement with student judgments and that the small minority of administrators who thought otherwise were wrong in their predictions approximately half the time.

WRITTEN STUDENT REACTIONS BENEFIT MANY TEACHERS

The results of a recent study led Oliver (1967) to these conclusions:

"1. Informational feedback from students is effective in changing teacher behavior.

2. Student feedback is more effective in changing teacher behavior than supervisory feedback.

3. The utilization of student feedback as a means of influencing teacher behavior should be used to a greater extent."

When commenting on the third conclusion Oliver wrote, "Except for the work at Western Michigan and Stanford, little is being done at the present time to exploit this very important source of aid for the teacher who is seeking to improve his professional growth."

The new Director of the Master or Arts in Teaching at the University of Chicago said in this doctoral report (Ryan, 1966), "In response to a questionnaire on sources and types of feedback to the Stanford Teacher Education program, interns strongly endorsed the use of feedback from students, particularly written feedback. Their answers to the question (Generally what source of feedback--Resident supervisor, Stanford supervisor or student feedback--has been most valuable to you?) showed that the highest percentage perceived student feedback to be the most valuable."

For the benefit of the teacher who is anticipating great improvement in his second or third image report over the first, a word of caution is in order. As pointed out by Bryan (1966) the image is stubbornly stable. A teacher's high and low points tend to persist year after year. In one study, Bryan (1963) found that 57 percent of a group of teachers who had the benefit of image reports made a statistically significant gain on one question or more (over a two-year period) as compared with 24 percent of a group who did not have the benefit of image reports. Gains were recorded for a much larger percentage of the experimental group in all five of the following classification based on years of experience: 1-5, 6-10, 11-15, 16-20 and 22 years and over.

The fact that 57 percent made gains on one question or more means that 43 percent failed to make any measurable gain over a two-year period. It is one thing for a teacher to learn that he is deficient in a given area and it is another thing for him to understand what he can do to remove that deficiency. Where does he turn for help? This is the great challenge that is not adequately being met yet.

WRITTEN STUDENT REACTIONS AND CRITERIA OF TEACHER EFFECTIVENESS

Teacher effectiveness as a concept has no meaning apart from the criteria by which effectiveness is judged. Researchers usually divide criteria into these three categories: (1) process criteria, (2) presage criteria, and (3) product criteria.

Process criteria are defined by Soar (1964) as "aspects of the classroom operation which are deemed worthwhile in their own right, although they may not be directly related to the outcomes of education, the product criteria. These process criteria are most often measures of classroom climate or typical situations involving the social interaction of students and teachers. Other examples would be the extent to which teachers discipline students effectively, maintain rapport with students..."

Mitzel (1960, p. 1484) says, "In considering both teacher behavior and student behavior as process criteria, it becomes clear that neither of them should be studied in isolation from the other. The interaction between them appears to be the dominant aspect of the whole process of learning."

One is thinking in terms of process criteria when he concludes that improved student reactions mean improved teacher effectiveness. Other things being equal, the teacher who conducts classes that students find challenging and interesting is more effective than the one who conducts classes that bore students. The teacher who gets cooperation in the pursuit of classroom objectives is more effective than one who fails to get students to concentrate on classroom business, and the teacher who is admired and respected is more effective than the one who is feared or regarded with contempt.

Presage criteria include factors like years of experience, intelligence, degrees held and other aspects of preparation, social skills and the like. Concerning presage criteria, Mitzel (1960, p. 1484) comments: "In a sense they are pseudo criteria, for their relevance depends on an assumed or conjectured relationship to other criteria, either process or product. Precedent forces their consideration as criteria, since the bulk of research on teacher competence has employed dependent variables which fit into this category."

Product criteria refer to measured student growth or gains resulting from a teacher's efforts. Fattu (1961, p. 19) says, "Despite 50 years of continued development in the field of educational measurement, satisfactory tests of achievement exist only in a few of the basic skill areas. Adequate measures of social and emotional adjustments, cultural appreciations, or attitudes essential to democratic living are not yet available... Though elaborate statistical and experimental methods have been developed, there is no one who can demonstrate a scientific way of making use of pupil-gain criteria in measuring teacher effectiveness."

Process criteria, presage criteria and product criteria--of these only process criteria are at present of practical use to the teacher in his efforts to improve in effectiveness.

ONE OBSTACLE TO THE USE OF IMAGE REPORTS

A secondary-school principal recently made this comment, "It takes courage for a teacher to invite the kind of criticism contained in a written student-reaction report. Many teachers find reasons to avoid the discomfort. Yet, more than half are willing to get a report on student perceptions if the procedures used reduce the threat to a minimum."

Many teachers simply refuse to consider the idea and often rationalize their refusal with statements that appear logical but lack support in fact. Those who have received a report prepared at the Student Reaction Center react in different ways. Following are comments by five teachers concerning emotional reactions upon reading their first student-feedback report:

1. I was delighted over the complimentary parts of my report, but I bridled at the criticisms. However, I soon found myself planning for improvements in the future. This method of improvement is rough on those of us who have a thin skin.

2. It was both helpful and hurtful. My first reaction was, "But you don't know my side of the story." This feeling soon disappeared.

3. My student-reaction averages on several questions were very low. I felt demoralized. It took considerable time before I regained composure.

4. Basically, it hit on sore spots I am now trying to overcome and the "praise" comments boosted my ego enough to make me want to improve all the more.

5. I never dreamed that students appreciate my efforts so much as the report indicated they do. The high averages and many complimentary things they said gave me a new lease on life. No salary increase has ever pleased me more.

QUESTIONS AND ANSWERS CONCERNING THE SERVICE

During the last six years, the Student Reaction Center has prepared student-feedback reports for thousands of teachers. The service will again be available to high school teachers (grades 7-12) during the 1968-69 school year. Upon the retirement of Dr. Roy C. Bryan in June of 1968, Dr. William Coats was appointed to serve as director of the Center.

Following are some questions and answers concerning the service.

1. How does a teacher place an order for service? Simply by placing his name on the accompanying form and giving the few items of information called for. Also, a principal can order service for teachers simply by specifying the total number of teachers and the total number of classes to be covered, and indicating average class size.

2. What steps are taken in getting a student-reaction report to a teacher? The steps are these:

    a. The Student Reaction Center mails the needed number of student-opinion questionnaires along with necessary instructions.

    b. On a date chosen by the teacher, the students answer the questionnaire. Approximately fifteen minutes are needed by students to answer. Someone other than the regular teacher is in charge of the class during this brief period of time. That "someone" is usually a fellow teacher.

    c. The answered questionnaires from each class are placed in an envelope provided for that purpose and promptly sealed and mailed to the Student Reaction Center. No one at the school sees the answered questionnaires.

    d. The Student Reaction Center prepares and mails the report to the teacher within three weeks after the answered questionnaires are received at the Center.

3. How many classes should be included in a report to one teacher? Some teachers administer the questionnaire to three classes. Some have the questionnaire answered by only one class. Most teachers have called for reports based on two classes.

4. When during the year should the teacher have students answer the questionnaire? Any time after students have had adequate opportunity to become well acquainted with the teacher. This usually means a minimum of nine weeks.

5. What is the cost of an image report? The cost of a report on the reactions of students in one class (regardless of class size) is $7.00; a two-class report is $14.00; etc. This fee does not quite cover all expenses. The balance is assumed by Western Michigan University.

6. Who should pay the cost? Because of the potential of student-reaction reports for the improvement of instruction, the expense is almost always assumed by the school.

7. Who sees a teacher's report? The image report is seen by no one but the teacher (aside from the few persons at the Center who prepare the report). Each report is a confidential document and is treated as such at all times.

One copy of each report is retained at the Student Reaction Center (unless the teacher requests otherwise) for the following purposes exclusively:

a. To permit the Center to compare a teacher's report of one year with that of a succeeding year or years. Such comparison facilitates interpretation needed by the teacher.

b. To enable the Student Reaction Center to prepare a letter of recommendation when requested to do so by the teacher. Some users of the service have requested letters of recommendation to teacher placement offices and to administrators. Requests for information about a teacher by any person other than the teacher will never be honored.

c. To serve as a source of information for research designed to improve service to teachers.

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6. Oliver, Wilmot F., The Relative Effectiveness of Informational Feedback About Supervisory and Student Reactions with Beginning and Experienced Vocational Teachers. Cooperative Research Project No. 6-8327, sponsored by the U.S. Office of Education. Rutgers University, 1967.

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GPO 813-526-7

Cut along this line

SERVICE ORDER FORM

STUDENT REACTION CENTER
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MICHIGAN 49001

Name of School______________________________ Name of Principal___________________________

Street______________________ City_____________________ State_________ Zip Code________

Names of teachers in grades 7-12 who desire to have an image report prepared at the Student Reaction Center should be printed or typed below.

NAME OF TEACHER	*Number of Classes	**Total Number of Students	***Approx. Date
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		
	1 2 3		

* Encircle 1, 2, or 3 to indicate the number of classes in which students will answer the questionnaire. For example, a chemistry teacher may order an image report based on one or more classes taught by him.

** Specify the total number of students in the encircled number of classes.

*** Specify the approximate date on which you desire to have students answer the questionnaire.

Please indicate to whom the bill ($7.00 per class) should be sent. Underline your answer: (a) To the principal, (b)
The name of each teacher serviced will appear on the invoice which will be mailed after all teachers have received the ordered service.

Student Reaction Center

Western Michigan University

INSTRUCTIONS FOR TEMPORARY SUBSTITUTE

You will be in charge of this class for the 15 or 20 minutes needed by students to answer the opinion questionnaire.

BEFORE MEETING WITH STUDENTS

1. Check the information on the face of the large, return envelope to make sure that there is no mistake about the class hour for each class in which you substitute. If more than one class, be sure to use the right envelope for each.
2. Make sure that all the information called for on the face of the large, return envelope has been supplied.

WHILE ADMINISTERING THE QUESTIONNAIRE

1. While administering this student-opinion questionnaire, exhibit the same attitude that is appropriate when administering any test or examination.
2. The instructions needed by students are contained in the introduction to each questionnaire.
3. Make sure that students understand that they should answer the questions regarding their regular teacher (who is temporarily absent) and not concerning you, the temporary substitute.
4. Students should be given all the time needed to answer questions 11-14. If students are hurried, they are inclined to omit answers to these questions.
5. It is desirable that you remain seated at the desk rather than circulate among students while they are answering the questionnaire.
6. After all questionnaires have been answered, have one student collect all copies for delivery to your desk.
7. Since the students are told in the introduction to the questionnaire that "the person who is temporarily in charge of your class will, during the period, collect and seal all reports in an envelope addressed to Western Michigan University"—you should promptly seal the answered questionnaires in the envelope in the presence of the students.

AFTER THE ENVELOPE HAS BEEN SEALED

You should mail the envelope to Western Michigan University unless envelopes from a number of classrooms are being collected at a central location for packaging. In the latter event, you should deliver the envelope to the "central location."

The Kalamazoo Postmaster has informed us in writing that these sealed envelopes containing the answered questionnaires will cost ten cents for the first pound or less and five cents for each additional pound. These are "educational materials" that call for the book rate. Do not pay more. If your postmaster disagrees, have charges above the specified rate marked for collection in Kalamazoo.

Directions for Tabulating and Preparing Feedback Data from the Student Opinion Questionnaire

1. Find the average of all student responses for each individual question, 1 to 13.

2. Question 13, you will notice, is not included in the summary graph. Write the answer for the average response to question 13 at the bottom of the graph, i.e. (#13 - too heavy.)

3. Enter the averages for each question in the summary graph by placing a mark in the appropriate column at the row corresponding to the average for the question.

4. Connect all the marks. The result should be a line graph.

Summary of Comments

1. Find the two or three lowest and the two or three highest average ratings the teacher received. From question 14, select from the comments those which will tell the teacher why the students rated him high. From question 15, select comments which will tell the teacher why he was rated low. In short, select comments that focus on the two questions he was rated highest in and the two questions he was rated lowest in. A good rule to follow is, do not write down a student comment unless it supports a low or high rated question or unless it appears three or more times.

2. Write the summary comments on a separate sheet of paper. Write them after their respective questions - numbers 14 and 15. An example of how this is done appears on page five of the blue document, Some Observations Concerning Written Student Reactions to High School Teachers.

   The teacher should not see the individual students' reactions, only the summary you prepare.

Criteria for Constructing and Evaluating Written Student Feedback Instruments

1. All items should be brief and specific.
2. Except in cases where a teacher is seeking an overall assessment, the number of items should be few enough that it can be completed in less than ten minutes.
3. All items should be in relation to recognizable teacher behavior.
4. Student responses should be made in reference to a five choice continuum. Five responses makes averaging and graphing easier.
5. Student responses should lend themselves to easy summary on graphs.
6. There should be an opportunity for open ended favorable and unfavorable comments. The age of the student ought to be considered here.

SAMPLES OF STUDENT FEEDBACK INSTRUMENTS

Listed below are a few samples of some student feedback instruments from Fox, Luszki, and Schmuck,[1] that may be useful to you in working with your FAU teachers.

Classroom Learning Climate
(Student Feeling Toward Peers, Studies and Teachers)

Instrument #1

1. Designed for general view of classroom climate.
2. 5 to 10 minutes in length.
3. Items of this instrument are merely suggestive of what can be used; teachers can include items that reflect specific concerns he has for his class and special student needs.

Classroom Life

Here is a list of some statements that describe life in the classroom. Circle the letter in front of the statement that best tells how you feel about this class. There are no right or wrong answers.

1. Life in this class with your regular teacher has been:
    - a. all good things
    - b. mostly good things
    - c. more good things than bad
    - d. about as many good things as bad
    - e. more bad things than good
    - f. mostly bad things
2. How hard are you working these days on learning what is being taught at school?
    - a. very hard
    - b. quite hard
    - c. not very hard
    - d. not hard at all
3. When I'm in this class I
    - a. usually feel wide awake and very interested
    - b. am pretty interested, kind of bored part of the time
    - c. am not very interested, bored quite a lot of the time
    - d. don't like it, feel bored and not with it

---

[1] Robert Fox, Margaret Luszki and Richard Schmuck. Diagnosing Classroom Learning Environments. Chicago: Science Research Associates, 1966.

4. How hard are you working on schoolwork compared with the others in the class?

   a. harder than most
   b. a little harder than most
   c. about the same as most
   d. a little less than most
   e. quite a bit less than most

5. How many of the pupils in this class do what the teacher suggests?
   a. most of them do
   b. more than half do
   c. less than half do
   d. hardly anyone does

6. If we help each other with our work in this class, the teacher:

   a. likes it a lot
   b. likes it some
   c. likes it a little
   d. doesn't like it at all

7. How good is your schoolwork compared with the work of others in the class?

   a. much better than most
   b. a little better than most
   c. about the same as most
   d. not quite as good as most
   e. much worse than most

8. How often do the pupils in this class help one another with their schoolwork?

   a. most of the time
   b. sometimes
   c. hardly ever
   d. never

9. How often do the pupils in this class act friendly toward one another?

   a. always
   b. most of the time
   c. sometimes
   d. hardly ever

Instrument #2

1. May be used for supportive information for Instrument #1.
2. Can provide some useful criticisms of class life, positive and negative.
3. Allows for considerable latitude in operating.
4. Allows for student to list as few or as many items as desired.

Some of the best things about this class are: ______________________________

Some of the worst things about this class are: ____________________________

Instrument #3

1. Permits students to register their feelings about teacher's characteristics.
2. Anonymity desirable because of personal nature of responses.

My Teacher

Pretend that you could have your teacher change in some way. For each number check the box that best tells how you would like your teacher to act in this class. There are no right or wrong answers.

(Continue With Chart on the Next Page).

	MUCH MORE THAN HE DOES NOW	A LITTLE MORE THAN HE DOES NOW	THE SAME AS HE DOES NOW	A LITTLE LESS THAN HE DOES NOW	MUCH LESS THAN HE DOES NOW
1. Help with work					
2. Yell at us					
3. Make sure work is done					
4. Ask us to decide about how we will work					
5. Smile and laugh					
6. Make us behave					
7. Trust us on our own					
8. Make us work hard					
9. Show that he understands how we feel					

Instrument #4

1. May be used for supportive information for Instrument #3.
2. Can provide useful criticism of teacher's characteristics and classroom methods.
3. Anonymity desirable because of personal nature of responses.

Some of the best things about my teacher are: ______________________________

Some of the worst things about my teacher are: ______________________________

Instrument #5

Combine both direct and indirect approach to feedback - directs pupil to specific aspects of class, but allows student to supply own answers.

Clues About Classroom Life

So that members of a class and their teacher may get ideas about how to make life more interesting and important for everybody in the class, each person needs to contribute his or her ideas about what needs to be improved. What things happen that shouldn't happen? What ought to happen but doesn't? Try to imagine yourself as a detective searching for clues to a "good" day and a "bad" day in this class. Jot down what you would look for or might see to answer these questions. There are no right or wrong answers.

What are some clues to a "good" day in our class? What things happen that are signs of a "good"day?

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

What are some things that should happen a lot more than they do to make it a better class for learning and having fun?

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

Instrument #6

Provide for pupil's reactions to specific learning experiences.

Post Class Reactions

Here are some questions about what happened in class today. Circle the letter in front of the statement that best tells how you feel about what happened. There are no right or wrong answers.

1. How much do you feel you learned today?

   a. don't think I learned much
   b. learned a little bit
   c. learned quite a lot
   d. learned a lot today
   Please write why you feel this way:_____________________________________

2. How clear was what we were doing?____

   a. very clear to me
   b. pretty clear to me
   c. not so very clear
   d. not clear at all
   What do you think was the reason we did what we did?_____________________

3. How often did you feel lost during this class period?

   a. lost most of the time
   b. lost quite a few times
   c. lost a couple of times
   d. not lost at all
   What made you feel lost?____

4. How often did you feel you wanted some extra help during this class period today?

   a. wanted help quite a few times
   b. wanted help several times
   c. wanted a little help once or twice
   d. wanted no help
   What kind of help did you want?____

5. How often did you see someone else needing help during our class period today?

   a. saw someone needing help quite often
   b. saw someone needing help quite a few times
   c. saw someone needing help a few times
   d. saw no one needing ehlp
   How could they have been helped?____

6. How did you feel about your participation in the discussion this last period?

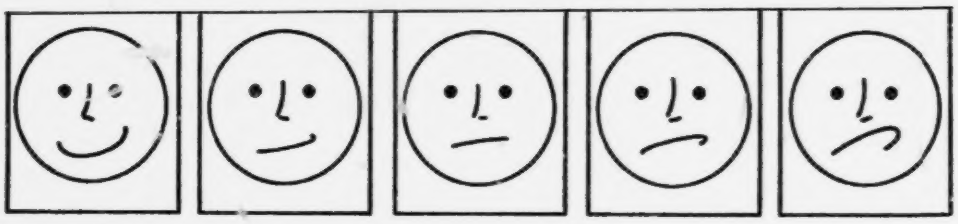
   a. not satisfied at all
   b. not very satisfied
   c. fairly satisfied
   d. very satisfied
   Why do you feel this way?____

7. How do you feel about what the teacher did in this last class period?

   a. very satisfied
   b. fairly satisfied
   c. fairly satisfied
   d. very satisfied

Lower Elementary Grades

Research has shown it is worthwhile to use these kinds of tools with lower elementary grades. The teacher of these children could use the same instruments as above by reading them and having students put an X under the degree of emotional response noted in the questions.



Uses of the Data (not all uses are listed)

Instrument #1

1. Inspect response of entire class in order to figure a strategy for any desired change.
2. Look at subgroups or individuals who deviate from the rest of the class in order to determine what actions need to be taken to assist these groups or individuals.

Instrument #2

1. A typical response may be used as a tool to help identify those pupils who would benefit from guidance services.
2. Look for positive and negative responses in order to reach an evaluation of the classroom climate so you can figure out strategies to achieve desired climate.

Instrument 3 & 4

1. Can provide some useful criticisms of class life, positive and negative.

Instruments # 5 & 6

1. Establish a "set" for joint responsibility for improving classroom procedures through student participation in studying the results.
2. Students can tally the results and read open-ended portions to the class.
3. Students can head discussion on proposed changes.

Social Relations in Classroom
(Friendships - Relationships)

The emotional support a student receives is important to his academic achievement. Consequently, it is necessary for a teacher to have knowledge of the social relations within his classroom.

Instrument #1

1. Provides information about which students are not liked by their peers.
2. Provides information about which are liked by their peers.

How I Feel About Others in My Class

Everybody has feelings about other people. We like some people a lot, some a little, and some not at all. We may think it is not proper or polite to dislike someone, but when we are really honest we realize that everyone has some negative feelings about certain people. If the teacher knows the way you feel about other members of your class, he can often plan things better. There are no right or wrong answers.

Using your class list with the names and numbers of your classmates, write the numbers of the students you would pick in answer to the following questions.

1. Which three students in this class do you like best

   ____________ ____________ ____________

2. Which three students in this class do you like least?

   ____________ ____________ ____________

3. How many students in this class would you say you know pretty well?

   a. all of them
   n. all but a few
   c. more than half
   d. about half
   e. less than half
   f. Only a few

4. How many students in this class would you say you like quite a lot?

    a. all but a few
    b. more than half
    c. about half
    d. less than half
    e. only a few
    f. none

5. Outside of this class, do you know people whom you like just as much or more than anyone in this class? YES________ NO________
If the answer is YES, please fill in their names in the right place below.

These friends are younger than I am

____

____

____

These friends are the same age as I am.

____

____

____

These friends are older than I am.

____

____

____

Instrument #2

1. Provides information about who the student percieves as possessing power.
2. Provides information on the student's ability to influence others.
3. Helps assess competence, cooperativeness and helpfulness as perceived by the students.

The People in My Class

It is a job of the teacher to find ways to make school life more interesting and worthwhile for all the students in the class. This form is your chance to give the teacher confidential information that will help him do this well. The way you see things is what counts. There are no right or wrong answers.

Using your class list with the names and numbers of your classmates, write the numbers of the students you would pick in answer to the following questions.

1. Which three students in this class are most often able to get other students to do things?

2. Which three students in this class do the girls most often do things for?

_______________ _______________ _______________

3. Which three students in the class do the boys most often do things for?

_______________ _______________ _______________

4. Which three students in this class are most cooperative with the teacher and like to do what the teacher wants the class to do?

_______________ _______________ _______________

5. Which three students in this class most often go against the teacher and what he would like the class to do?

_______________ _______________ _______________

6. Which three persons in this class do you think could make the biggest improvement in their schoolwork if they wanted to?

_______________ _______________ _______________

7. Which three persons in this class do you think show the most ability to learn new things that are taught in class?

_______________ _______________ _______________

8. Who would you most like to be if you couldn't be yourself but had to be someone else in this class?

_______________ _______________ _______________

From the two preceeding instruments a teacher can analyze the data by assigning a "+1" to positive choices and "-1" to negative choices. From this a matrix may be built such as the one shown below.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1		1			1		–1				1			–1		–1
2	1				1		–1		1				–1			–1
3	1				1			–1			1		–1		–1	
4		1			1		–1		1					–1		–1
5	1			1				–1			1			–1		–1
6		1		1			–1				1			–1		–1
7		1							1		1			–1	–1	–1
8				1			1		1				–1	–1		–1
9		1		1			–1				1		–1		–1	
10		1			1		–1				1		–1	–1		
11		1			1			–1	1				–1		–1	
12	1							–1	1		1		–1			–1
13			–1	1	1						1			–1		–1
14				–1	1			–1			1		–1			1
15	1			–1	1				–1		1		–1			
16			–1		–1				1		1		–1		1	
Total +	5	7	0	5	9	0	1	0	7	0	12	0	0	0	1	1
Total –	0	0	2	2	1	0	6	5	1	0	0	0	10	8	4	9

Uses of the Data (not all uses listed)

1. Help students to recognize and accept both positive and negative feelings from their peers. Show them this is a normal state of being.
2. Show students that negative or critical feelings are often necessary for constructive change.
3. Can identify students who need the most help in improving interpersonal relations. This help can come from the teacher or from some other source.
4. Will identify highly influential students.
5. For grouping purposes, in order to place certain members where their influence will be helpful.
6. Help students perceive as acceptable a variety of individual differences. A "skills chart" can be developed showing each student has some skill to offer to the class as a whole.
7. Involve neglected or rejected students in more activities that will increase their chances for participation.
8. Group "high status" students (those perceived by the teacher as influential and cooperative and who others want to be like) with students who are experiencing "acceptance" difficulties.
9. Get sub-groups to interact productively with each other in wholesome competition.
10. Individual student-teacher conferences can help rejected members of the class.

Student Norms

(The Standards and Expectations of Students for Classroom Behavior)

It is important for the teacher to know that in addition to his expectations and standards for performance or behavior, the classroom may have some of its own. These may support or be at cross purposes to the teacher's. Peer group ratings will be used to make a composite rating of the perceptions class members have about what classmates feel is appropriate behavior.

Instrument #1

Will reveal what the individual students perceive the group norms to be.

How This Class Feels

Classes are quite different from one another in the way students feel about schoolwork, one another, and the teacher. How do you think your classmates feel about the following things? Circle the answer you feel is appropriate for each of the statements below. There are no right or wrong answers.

	How Many Feel This Way?				
1. It is good to take part as much as possible in classroom work.	All	Many	Half	Some	A Few
2. Asking the teacher for help is a good thing to do.	All	Many	Half	Some	A Few
3. It is good to help other students with their schoolwork except during tests.	All	Many	Half	Some	A Few
4. Schoolwork is fun more often than it is not.	All	Many	Half	Some	A Few
5. Our teacher really understands how we students feel.	All	Many	Half	Some	A Few

Instrument #2

Will reveal how the individual feels the group norms are or should be.

How Do You Feel About These Things?

Circle the answer that tells how you feel about each of the statements below. There are no right or wrong answers.

1. It is good to take part as much as possible in classroom work.
   - a. the teacher would agree almost always
   - b. the teacher would agree more than disagree
   - c. the teacher would agree as often as disagree
   - d. the teacher would disagree more than agree
   - e. the teacher would disagree almost always
2. Asking the teacher for help is a good thing to do.
   - a. the teacher would agree almost always
   - b. the teacher would agree more than disagree
   - c. the teacher would agree as often as disagree
   - d. the teacher would disagree more than agree
   - e. the teacher would disagree almost always

Uses of the Data (not all uses listed)

Instrument #1

1. Teacher may see the differences in what the individual perceives to be group norms and what actually are the group norms.
2. Can help answer such questions as "Is class participation the thing to do? Do the students think I'm for or against them? How does the class feel about individuals helping each other? Are they enjoying the work we do?"

Instrument #2

1. Find discrepanices between the class norms and how individual students feel the norms are or should be.
2. Identify the student whose personal opinions are different from his perceived class norms. He may feel alienated from the class.

Instrument #3

1. Identify discrepancies between the students' perception of class norms and the ones actually held by the teacher. More effective student-teacher communication may be necessary.

Student-Teacher Interaction

(Verbal and Non-Verbal Exchanges)

Interaction between a teacher and his students can be so complex that a teacher may be unaware of certain aspects of it. Discrepancies may exist between his goals and his classroom behavior. He may wish to be viewed as warm and friendly but students may see his behavior as threatening and uncomfortable for them.

Instrument #1

Reveals students' perception of the class session. These items are of typical student-teacher interaction. Each teacher may revise questions to reflect more closely his own classroom situation.

Student Perceptions of a Class Period

Think about the last hour of the class. About how much time would you say was spent in each of the following activities? Circle the answer you think best tells how much time was spent. There are no right or wrong answers.

	How Much Time?			
1. The teacher talking to the whole class - telling, answering questions, asking something.	A Lot	Some	A Little	None
2. The teacher talking to individual students - telling, answering questions, asking something.	A Lot	Some	A Little	None

How Much Time?

3. Students talking to the teacher - telling, answering questions, asking something. A Lot Some A Little None

Now think about what you yourself did during the last class hour. Write in the choice of time you think is right. Make the best guess you can.

4. May teacher told or asked me things or answered my questions ________Times

5. I told or asked my teacher things or answered his questions ________Times

6. I told or asked other students things or answered their questions ________Times

7. During the last class hour, my teacher told or asked me things or answered my questions:

   a. much more than most other students
   b. a little more than most other students
   c. a little less than most other students
   d. much less than most other students

8. I volunteered to say things or do things during the class hour:

   a. much more than most other students
   b. a little more than most other students
   c. a little less than most other students
   d. much less than most other students

9. When my teacher told or asked me something, it was:

   a. only about my work
   b. mostly about my work, but a little about my behavior
   c. mostly about my behavior, but a little about my work
   d. only about my behavior

10. When my teacher told or asked me something, he was:

   a. very pleased
   b. satisfied
   c. somewhat dissatisfied
   d. quite dissatisfied

Uses of the Data (not all uses listed)

1. Identify any individuals or groups who see themselves as either overparticipating or underparticipating. Plan activities to bring about the desired goals.
2. Data will show how students percieve the participation of teachers and students.
3. Will show student's perception of the interaction as it is related to the work at hand and the teacher's degree of satisfaction with the individual. Better communications may be needed between teacher and students or a change in the teacher's behavior may be called for.

Student Feedback: A Summary of Findings from Research

by Dennis Bryan

Ryan(17) found that giving students some sort of rating scale on which to place their teacher is an important part of a successful student feedback form. Without this framework, students do not seem to measure their teacher against their ideal. Rather, they appear to respond with total acceptance or rejection of their teacher's behavior. He also concluded that if teachers were to change in a desired direction, the instrument used to assess student opinion must be interpretable in terms of the direction of the behavioral change. It may not be enough to simply make the teacher aware of how his students are perceiving his behavior. Implicit in or combined with the feedback there should be indications of how the teacher can bring about the desired behavior change.

In a recent study by Oliver(11) the following findings are significant:

1. There were significant differences in teacher effectiveness as observed by students between those groups receiving feedback from students, either alone or in combination with feedback from supervisors, and those who received no feedback.

2. The various sources of informational feedback were not equally effective. Student feedback improved teacher effectiveness while supervisors' feedback did not. The effect of the combined feedback did not exceed that of student alone.

3. The most experienced teachers (11 years and over) were least receptive to feedback as compared to the intermediate experienced teachers (11 years and over) were least receptive to feedback as compared to the intermediate experienced group of teachers (4-10 years) and those teachers with limited teaching experience (1-3 years). The effect of feedback on the intermediate and less experienced teachers was approximately equal but greater, at the .05 level of significance, than the most experienced group.

Based upon these findings, it would seem that the use of student feedback is an effective tool for helping teachers improve their effectiveness if utilized soon enough in their teaching careers.

McCall(10) in a study on teacher merit concluded that:

> At last we find some professional competent judges of teaching skill, namely teachers' pupils, especially after they have been taught by the teacher for nearly a year. Out of the mouths of children comes more accurate judgement of teachers than that rendered by their peers and supervisors, and, if our criterion is valid, they appear to have a truer idea of what constitutes good teaching than professors of education.

Since 1927, Hermann H. Remmers(13) has done much research on student ratings of instructors. Major generalizations from his research are:

1. Reliability of ratings of teachers by students is a function of the number of raters, in accordance with the Spearman-Brown prophecy formula. If 25 or more student ratings are averaged they are as reliable as the better educational and mental tests aviilable at pres sent.

2. Grades of students have little if any relationship to their ratings of instructors who assigned the grades.

3. Alumni ten years after graduation agree very closely (rank order rho = .92) with on campus students on the relative importance of ten teacher cahracteristics.

4. Alumni ten years after graduation agree substantially (r's ranging from .40 to .68) with on campus students in their average ratings of the same instructors.

5. Halo effect, if present in ratings by such instruments as the Purdue Rating Scale for Instructors, is insufficient to raise the intertrait correlations to unity when corrected for unreliability of the ratings. Evidence indicates that students discriminate reliably among different aspects of the teacher's personality and of the course.

6. Little if any relationship exists between students' rating of the teacher and the difficulty of the course.

7. The sex of student raters bears little or no relationship to their ratings of teachers.

8. The cost in time and money of obtaining student rating of teachers is low; in fact, considerably lower than the cost of administering a typical standardized educational test of some comprehensiveness.

9. Popularity in extra class activities of the teacher is probably not appreciably related to student ratings of that teacher.

10. Teachers with less than five years experience tend to be rated lower than teachers with more than five years experience.

11. The sex of the teacher is in general unrelated to ratings received.

12. Students are more favorable than instructors to student ratings of instructors, but more instructors than students have noticed improvement in their teaching as a result of student ratings.

In May of 1947, 6619 Brooklyn College students each rated five of their teachers. The Rutgers questionnaire was used and no appreciable differences in instructors' scores were found to exist because of size of classes, sex, course grades received by students, and whether or not the course was elective. Although the researcher of this study did not use a control group and made no attempt to adjust for initial differences in instructors, he made several significant contributions to the research on student ratings. Several findings not reported in other studies are:

1. Students with low scholastic standing tended to rate their instructors more rigorously than those with a relatively higher academic average.

2. All of the students agreed that the faculty excelled in one attribute-knowledge of subject.

3. They indicated a relatively poor opinion of the faculty on encouragement to thinking.

4. With but one exception, younger instructors were rated superior to older instructors. Only on knowledge of subject did the older men excel.

5. Those holding Ph.D.'s surpassed all others in nine out of ten qualities of good teaching.

6. Published research appeared to have a real bearing upon student conceptions of the good teacher. (15)

Since the preceding studies were reported, at least four studies on the effect of student ratings on teachers have been undertaken. In 1957, Marjorie Savage(18) investigated the effects of student ratings on junior high school teachers of home economics. In her study the subjects were student teachers who, in the experimental group, tabulated their own teacher's ratings and then discussed them with the supervising teacher. A factor that weakened the design in Savage's experiment was the fact that the first ratings were taken only five days after the student teachers began to teach, and the interval between first and second ratings was only twenty days. In a summary of the review of other studies, the interval between feedback and second ratings was an important variable in relation to the effect of feedback. Savage failed to exploit the advantages of analysis of variance for controlling initial differences between groups in relevant variables. In her results the trend was not in the hypothesized direction, nor was it statistically significant.

Another undertaking relevent to the proposed research in this study is that of Nathaniel L. Gage, Philip P. Runkel, and B.B. Chatterjee.(7) This is one of the few empirical studies concerning the influences of feedback on teacher behavior. The effects of feedback from pupils to teacher were studied. Comparison of experimental and control groups of sixth grade teachers indicated that when teachers were provided with information obtained from their pupils regarding how the pupils described their actual teacher and how they described their ideal teacher on 12 items of teacher behavior, (1) teachers' behavior changed--as indicated by subsequent pupil descriptions of their actual teacher--in the direction of the pupils initial descriptions of their ideal teacher, and (2) the teachers receiving feedback became increasingly accurate in predicing their pupils description of their teacher. The results of this study indicated that there was a relationship between teacher change caused by feedback and the interval between feedback and post ratings of the teachers. The groups with the longest interval approached their pupils pre-ideal most closely.

Bryan(3) also sought an answer to the question: "To what extent can improvements in teacher effectiveness as judged by students be brought about through the use of written student reactions?"

In elaborating upon this question, Bryan stated:

> Testimony to the effect that student reactions have been helpful to individuals and groups is plentiful. Not so numerous are reports of improvements based on a study of favorable changes in average ratings over a period of time. One of these was made by Wilson, who stated, on those topics on which instructors had made a systemtic effort to improve, the June averages were about 25 percentile points above those in December...Starrak found that ratings by students increased 'quite materially' with each successive rating over a two year period.

Bryan's research was a longitudinal study. In the spring of one year he elicited the student reactions from the classrooms of more than 75 teachers classified as the "experimental" group. In this research, Bryan finished his study with a great imbalance between the experimental and control groups with respect to the number of years of teaching experience represented by teachers in these groups. The experimental group had twice as many teachers in the 1-5 years of experience group, while the control group had more than twice as many in the 21 year and up group. It is the opinion of this investigator that years of teaching experience is an important variable and does affect the results. The data presented by Bryan in this study very clearly indicate that the feedback of information about student reactions can be used as a means of improving effectiveness as seen by students. Other significant conclusions from Bryan's report are:

1. The image of a teacher held by students usually has much in common with the image held by administrators and parents.

2. The image one group of students has of a teacher is usually very similar to that held by other groups of students.

3. Even though no significant correlation was found between ratings of high school students (or administrators) with student gain in the form of subject matter learned, high correlation was found between teacher prestige with students and development of interest in and liking for the subject of chemistry.

4. A large percentage of high school teachers can use information gained from student reaction feedback as a means of improving their image with students.

5. A teacher's best chance of gaining an improved image with students rests not in waiting for them to mature, but rather in increasing his prestige with students currently in his classroom.

Research on the Reliability of Student-Instructor Ratings

Student ratings of instructors appeared on the scene about 1923. There has been a steady increase in the rise of such ratings since that time. Many dissatisfications concerning the reliability of student ratings have been voiced. This relates to the ability of the student to make unbiased judgments concerning a teacher's performance. Since this is a crucial objection regardless of the groups upon which it is based, an attempt will be made to document studies which have shown that in the main, these objections have not been well founded in fact.

Grades for example have shown little if any relationship to students' ratings. Starrak(19) administered his scale to over forty thousand subjects and found that the grades a college student gets do not appreciably affect the rating given by him to his instructors. A more recent study by John W. Riley et al.(16) at Brooklyn College in 1949, did show the students with low scholastic standing to be somewhat more critical in their judgments than the better scholars. Although there was no bias with regards to fairness on examinations. In general, this bias was not great, amounting to five or six or points on a one hundred point scale. Remmers(14) also found that the relation between students' grades and their attitudes toward instructors to be a negligible (.07). Hudelson(9) found a correlation coefficient of .19 for students' ratings of college instructors and student grades by their instructors.

In 1935, Heilman and Armentrout(8) had over two thousand students rate forty-six college teachers on the Purdue Rating Scale. The reliability of these ratings by college students was approximately .75. They also reported that, "factors of class size, severity of grading, the student's interest in the course, the sex of the teacher, and the maturity of the rater...can not be said with certainty to have any effect upon the ratings."

Remmers compared the effect of maturity in the ratings of freshmen, sophomores, juniors and seniors. As a result of these comparisons, Remmers concluded that "the differences are relatively unimportant as compared to the resemblances among the four classes."(12).

In addition, Amotora(1) found that even elementary students give rather stable ratings; also these students evidence good discrimination and agreement. It might be well to note that Symonds(20) found pupil ratings correlate positively with principal ratings for the same teachers.

Boardman(2) found a reliability of .81 for pupil rankings against .88 for supervisor ranking of these same teachers. Davenport(4) obtaining similar reliabilities, concluded that "it can be said with a fair degree of confidence that pupils are competent to rate teachers and that their ratings are reliable and valid, and that the ratings of pupils have no deleterious effects on either pupil or teacher morale." The author also noted that pupils are the only competent judges of how much they like teachers. They are capable of rating the frequency of teaching practices, and that while such ratings are subjective, that pupils form opinions quickly and do not tend to change them.

Douglas(6) pointed out that student opinion is reliable. He reported in one experiment a coefficient of .89 between two sets of student ratings with a one month spread between ratings. Detchen(5) also found "consistent agreement among the ratings of thirty-eight instructors by their classes."

Summary

It can be seen from this review of the literature that students can make a contribution by providing informational feedback to their teachers. This information can be very valuable to the teacher since the primary test of a teacher's effectiveness is the impact he has upon students. The best teacher is the one who brings about desirable changes in a large percentage of his students. There is a great body of evidence to support the fact that students do know whether they are working or loafing, whether they are confused or working with a clear purpose, and whether they are inspired or bored.

Experiments conducted also indicate that:

1. Students are keen judges of teaching.
2. As pupils become older they change relatively little in their reactions to teachers.
3. Pupil ratings on most items are highly reliable.
4. The ratings of 25 pupils whether in junior or senior high school will produce reliabilities of .90 or above on a majority of items which is as reliable as the best standardized mental and educational tests available.
5. Pupils showed much more discrimination in their ratings than did administrators.
6. Pupil ratings can be both valid and reliable measures of pupil opinion if scientifically gathered.

7. There is a very low correlation between students' marks, class size, sex, severity of grading, sex of teacher, maturity of the rater, and the ratings gained by students.

8. Student ratings have no deleterious effects upon either pupil or teacher morale.

9. Years of teaching experience and age must be taken into account as a relevant independent variable whenever teacher characteristics are considered.

10. The image of a teacher held by students usually has much in common with the image held by administrators and parents.

11. The image one group of students has of a teacher is usually very similar to that held by other groups.

12. A large percentage of high school teachers can use information gained from student reaction feedback as a means of improving their image with their students.

13. Students do not necessarily have to know what constitutes good teaching in order to furnish valuable evidence in well designed studies.

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Appendix J

INSTRUMENTATION

Introduction

This Appendix contains the instruments used to evaluate the effectiveness of the TBIP in changing classroom behavior. Instruments which have been created by MOREL are included in this section along with a statement of purpose and directions for their use. Instruments not created by Morel are named and described briefly and their availability is indicated.

The Instruments

A. Teacher Instruments
  1. Teacher Inventory which contains:
    a. Semantic Differential
    b. Troldahl's Short Form of the Rokeach Dogmatism Scale*
    c. In My Class (teacher's self-description scale)
    d. Social Reaction Inventory
    e. Interest Questionnaire
    f. Program Evaluation Interview
    g. Demographic Data Form

B. Student Instruments
  1. Student Inventory
    a. *Michigan Pupil Attitude Inventory**
    b. Responsibility Inventory
  2. In This Class (Teacher Behavior Inventory)
  3. MOREL Student Attitude Inventory (Semantic Differential)
  4. Western Michigan University Student Opinion Questionnaire*

The instruments marked with an * are not included in this section, but are available.

For the Short Form Dogmatism Scale contact:
Verling C. Troldahl
Communications Department
Michigan State University
East Lansing,Michigan

For the Michigan Pupil Attitude Inventory contact:
Ned A. Flanders
Office of Research Services
University of Michigan
Ann Arbor, Michigan

For the Student Opinion Questionnaire see the Appendix on Student Feedback in this document.

The Instruments

On the following pages each instrument is reproduced for users of this program. The purpose and directions are included. In some cases where the same basic instrument is used for both students and teachers,it is not reproduced twice, but necessary changes are described. Because of the above list of the instruments, they are treated here by title rather than under teacher-student headings. One can refer to Chapter IV of the body of this report for more information on instrumentation.

The Semantic Differential

The Semantic Differential used in this program consists of thirty-two adjective pairs under each concept. The same pairs are used on both the student and teacher instruments. There are five concepts on the teacher form and four on the student form. Each concept appears at the top of a separate page followed by the adjective pairs. The person completing the instrument marks how he feels on each concept by checking in one of the seven spaces between each adjective pair. The instrument is scored by factor analyzing each concept. The major factors extracted are scored separately for each concept. Each item is scored 1-7, and the directions for each adjective pair is determined by the sign on the factor loading.

The concepts included on the teacher form are:

1. Myself as a teacher
2. The pupils in my class
3. The principal in my school
4. Teaching
5. Participating in the Teaching Behavior Improvement Program

The concepts included on the student form are:

1. My teacher
2. My class
3. Attending school
4. Myself

The following is an example of the format and the adjective pairs used by MOREL in the Teaching Behavior Improvement Program.

(Concept)

happy:____:____:____:____:____:____:____:sad
strange:____:____:____:____:____:____:____:familiar
unusual:____:____:____:____:____:____:____:usual
cruel:____:____:____:____:____:____:____:kind
sharp:____:____:____:____:____:____:____:dull
high:____:____:____:____:____:____:____:low
comfortable:____:____:____:____:____:____:____:uncomfortable
good:____:____:____:____:____:____:____:bad
enjoyable:____:____:____:____:____:____:____:distasteful
negative:____:____:____:____:____:____:____:positive
valuable:____:____:____:____:____:____:____:worthless
worst:____:____:____:____:____:____:____:best
dislike:____:____:____:____:____:____:____:like
relaxed:____:____:____:____:____:____:____:tense
hesitant:____:____:____:____:____:____:____:eager
easy:____:____:____:____:____:____:____:hard
unfair:____:____:____:____:____:____:____:fair
active:____:____:____:____:____:____:____:passive
fast:____:____:____:____:____:____:____:slow
insecure:____:____:____:____:____:____:____:secure
weak:____:____:____:____:____:____:____:strong
interesting:____:____:____:____:____:____:____:boring
heavy:____:____:____:____:____:____:____:light

warm:____:____:____:____:____:____:____:cold

mean:____:____:____:____:____:____:____:kind

neat:____:____:____:____:____:____:____:sloppy

soft:____:____:____:____:____:____:____:hard

impulsive:____:____:____:____:____:____:____:stable

clean:____:____:____:____:____:____:____:dirty

plain:____:____:____:____:____:____:____:fancy

loud:____:____:____:____:____:____:____:quiet

woman-like:____:____:____:____:____:____:____:man-like

In My Class/In This Class

This instrument is used in a slightly different form for both teachers and students. When used with students its purpose is to assess their description of a teacher and that teachers' classroom instructional behavior. When used with teachers it is to assess how the teacher describes his class or classes. The form reproduced here is the student form which is called Teacher Behavior Inventory and consists of 55 items. Items 56-60 are to be added when used with teachers.

The language of this form is from the viewpoint of the student. When it is used with teachers slight modifications must be made in the wording. For example item one appears as follows:

The teacher usually sympathizes with the students. :____:____:____:____:____:____:____: The teacher rarely sympathizes with the students.

In order to make this item appropriate for teacher use the pronoun 'I' could replace the words 'the teacher'. By making changes of this nature in each item, the instrument is appropriate for both students and teachers. For the teacher the page heading is changed from In This Class to In My Class. The scoring for this instrument is the same as the semantic differential.

In This Class
(Teacher Behavior Inventory)

On the following pages you will find a series of scales. Each scale looks like this: :____:____:____:____:____:____:____: Please place an X on the line at the place that indicates which statement more nearly describes this class with this teacher.

Example: In This Class

A. The teacher usually tells the students exactly what to do. :____:____:____:____:____:____:_X_: The teacher rarely tells the students exactly what to do.

This teacher rarely tells the student exactly what to do.

In This Class

B.	The teacher usually tells the students exactly what to do.	:___:___: X :___:___:___:___:	The teacher rarely tells the students exactly what to do.

This teacher is a little more likely than not to tell the students exactly what to do.

1.	The teacher usually sympathizes with the students.	:___:___:___:___:___:___:___:	The teacher rarely sympathizes with the students.
2.	The teacher sticks to the facts.	:___:___:___:___:___:___:___:	The teacher often states her own opinion to the class.
3.	The teacher rarely talks out of turn.	:___:___:___:___:___:___:___:	The teacher occasionally talks out of turn.
4.	The teacher usually thinks his idea is best.	:___:___:___:___:___:___:___:	I occasionally think my idea is best.
5.	The principal does not like the teacher.	:___:___:___:___:___:___:___:	The principal likes the teacher.
6.	The teacher shows approval when students present their ideas.	:___:___:___:___:___:___:___:	The teacher is really glad when students present their ideas.
7.	The teacher feels insecure.	:___:___:___:___:___:___:___:	The teacher feels secure.
8.	The teacher does not like the class.	:___:___:___:___:___:___:___:	The teacher likes the class.
9.	The students are usually willing to change things.	:___:___:___:___:___:___:___:	The students are rarely willing to change things.

10.	The teacher is upset when she cannot answer a student's question.	:___:___:___:___:___:___:___:	The teacher is not upset when she cannot answer a student's question.
11.	Other teachers like the teacher.	:___:___:___:___:___:___:___:	Other teachers do not like the teacher.
12.	The teacher usually brings in extra work done in the class.	:___:___:___:___:___:___:___:	The teacher usually sticks to the text book.
13.	The students usually feel satisfied.	:___:___:___:___:___:___:___:	The students rarely feel satisfied.
14.	The teacher is not particularily committed to teaching.	:___:___:___:___:___:___:___:	The teacher is really committed to teaching.
15.	The teacher always presents ideas which influence the class.	:___:___:___:___:___:___:___:	The teacher usually presents ideas which influence the class.
16.	The students rarely seem involved in the classroom activities.	:___:___:___:___:___:___:___:	The students usually seem involved in the classroom activities.
17.	The teacher seldom uses the ideas of the students.	:___:___:___:___:___:___:___:	The teacher usually uses the ideas of the students.
18.	The students rarely start a new topic.	:___:___:___:___:___:___:___:	The students often start a new topic.
19.	The students often help each other.	:___:___:___:___:___:___:___:	The students often interfere with each other.

20. The teacher neither approves nor disapproves of a student who thinks he has the best idea. :____:____:____:____:____:____:____: The teacher tolerates a student who thinks he has the best idea.

21. The teacher tries to prevent students talking out of turn. :____:____:____:____:____:____:____: The teacher tolerates students talking out of turn.

22. I would rather have another teacher next year. :____:____:____:____:____:____:____: I would like to have the same teacher next year.

23. The teacher tries to prevent students "cutting up". :____:____:____:____:____:____:____: The teacher tolerates students "cutting up".

24. The students like the teacher. :____:____:____:____:____:____:____: The students do not like the teacher.

25. The teacher occassionally praises the students. :____:____:____:____:____:____:____: The teacher often praises the students.

26. The teacher often tries new ideas. :____:____:____:____:____:____:____: The teacher rarely tries new ideas.

27. The teacher shows approval when students do extra work. :____:____:____:____:____:____:____: The teacher is really glad when students do extra work.

28. The teacher rarely feels satisfied. :____:____:____:____:____:____:____: The teacher usually feels satisfied.

29. The students often ask questions. :____:____:____:____:____:____:____: The students seldom ask questions.

30. The teacher likes most students. :____:____:____:____:____:____:____: The teacher does not like most students.

31. The teacher is rarely willing to change things. :____:____:____:____:____:____:____: The teacher is usually willing to change things.

32. The students usually concentrate in this class. :____:____:____:____:____:____:____:in this class. The students usually daydream or doodle in this class.

33. The teacher seldom laughs with the students. :____:____:____:____:____:____:____:The teacher often laughs with the students.

34. The teacher usually lectures to the class. :____:____:____:____:____:____:____:The teacher occasionally lectures to the class.

35. The teacher feels like a leader in the class. :____:____:____:____:____:____:____:The teacher feels like a member of the class.

36. The teacher often gives the students directions. :____:____:____:____:____:____:____:The teacher rarely gives the students directions.

37. The students often disrupt the class by acting out. :____:____:____:____:____:____:____:The students rarely disrupt the class by acting out.

38. It is usually quiet. :____:____:____:____:____:____:____: It is usually noisy.

39. The students occasionally sympathize with others. :____:____:____:____:____:____:____:The students usually sympathize with others.

40. The students feel insecure. :____ ____:____:____:____:____:____:The students feel secure.

41. The teacher approves of students sympathizing with other students. :____:____:____:____:____:____:____:The teacher neither approves nor disapproves of students sympathizing with other students.

42. The students do not like the school. :____:____:____:____:____:____:____: The students like this school.

43. The teacher is usually enthusiastic when teaching. :____:____:____:____:____:____:____:The teacher is rarely enthusiastic when teaching.

44. The students rarely talk out of turn. :____:____:____:____:____:____:____:The students occasionally talk out of turn.

45. The teacher is concerned with teaching the relationship between ideas or facts. :____:____:____:____:____:____:____: The teacher is concerned with teaching facts or ideas.

46. The teacher calls on students by name. :____:____:____:____:____:____:____: The teacher calls on the students with their hands raised.

47. The teacher often criticizes the students. :____:____:____:____:____:____:____: The teacher rarely criticizes the students.

48. The teacher often relates her own experiences to the class. :____:____:____:____:____:____:____: The teacher rarely relates her own experiences to the class.

49. The teacher always offers compromises when several sides are taken on a subject. :____:____:____:____:____:____:____: The teacher usually offers compromises when several sides are taken on a subject.

50. The teacher likes this school. :____:____:____:____:____:____:____: The teacher does not like this school.

51. The teacher rarely plans her teaching. :____:____:____:____:____:____:____: The teacher usually plans her teaching.

52. The teacher occasionally tells the students how they are expected to behave. :____:____:____:____:____:____:____: The teacher often tells the students how they are expected to behave.

53. The teacher always listens to the students. :____:____:____:____:____:____:____: The teacher often listens to the students.

54. The students do not like this class. :____:____:____:____:____:____:____: The students like this class.

55.	The teacher tolerates a student who thinks he has the best idea.	:____:____:____:____:____:____:____:	The teacher disapproves of a student who thinks he has the best idea.

When using with teacher, add the following five items.

56.	I am rarely comfortable accepting praise from the principal.	:____:____:____:____:____:____:____:	I am usually comfortable accepting praise from the principal.
57.	I am usually comfortable accepting criticism from the principal	:____:____:____:____:____:____:____:	I am rarely comfortable accepting criticism from the principal.
58.	I am usually comfortable accepting praise from my colleagues.	:____:____:____:____:____:____:____:	I am rarely comfortable accepting praise from my colleagues.
59.	I am usually comfortable accepting criticism from my colleagues.	:____:____:____:____:____:____:____:	I am rarely comfortable accepting criticism from my colleagues.
60.	I plan my lessons for each day.	:____:____:____:____:____:____:____:	My teaching is more spontaneous than planned.

MOREL Social Reaction Inventory

This instrument is used with teachers. The explicit directions are stated below. This instrument is scored by assigning a 1 value to items marked A and a 2 value to items marked B except on those marked with an * in which the process is reversed. A = 2, B = 1.

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Put a circle around the letter in front of the statement of your choice. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

I MORE STRONGLY BELIEVE THAT:

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. The average citizen can have an influence in government decisions.

   b. This world is run by the few people in power, and there is not much the little guy can do about it.

3. a. Most of the time I can't understand why politicians behave the way they do.

   b. In the long run the people are responsible for bad government on a national as well as on a local level.

4. a. The most important person in the classroom is the teacher.

   b. The most important person in the classroom is the pupil.

5. a. In the long run the bad things that happen to us are balanced by th good ones.

   b. Most misfortunes are the result of lack of ability, ignorance, laziness or all three.

I MORE STRONGLY BELIEVE THAT:

6. a. Valuable ideas for class projects come from textbooks.

   b. Valuable ideas for class projects come from students.

7. a. In the case of the well prepared student there is rarely, if ever such a thing as an unfair test.

   b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

8. a. The more the class is alike in achievement at the end of the year, the better the teaching.

   b. The more the class is different in achievement at the end of the year, the better the teaching.

9. a. When I make plans, I am almost certain that I can make them work.

   b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

10. a. All students should get an equal amount of the teacher's time.

    b. Some students should get less of the teacher's time than others.

11. a. Teachers who permit students to argue with them in the classroom are insecure.

    b. When students argue with the teacher in the classroom, the teacher is learning.

12. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

13. a. When students work together on team projects, all of the students learn.

    b. When students work together on team projects the "slow" students learn, but there is very little benefit to the "more able" students.

14. a. One should always be willing to admit mistakes.

    b. It is usually best to cover up one's mistakes.

I MORE STRONGLY BELIEVE THAT:

15. a. In order for a teacher to be effective she (he) needs the support of the administration.

* b. A "good" teacher is a "good" teacher regardless of the administration.

16. a. When school work is based on the student's experience, maximum learning occurs because it is related to reality.

b. When school work is based on the student's experience, "narrow" learning results because unfamiliar and challenging experiences are avoided.

17. a. It is more important for each child in the class to reach his potential.

b. It is more important for the majority of the class to reach a national achievement standard.

18. a. The students should determine the future activities of the class.

b. The curriculum should determine the future activities of the class.

19. a. An effective teacher carefully plans the day so that each subject to be taught has a specified time and duration.

* b. It is more effective teaching to allow the subject matter to develop naturally in the course of the day, even though some subject may be neglected.

20. a. What happens to me is my own doing.

b. Sometimes I feel that I don't have enough control over the direction my life is taking.

21. a. Sometimes I don't understand how teachers arrive at the grades they give.

* b. There is a direct connection between how hard I study and the grades I get.

22. a. One of the most important functions of a teacher is to help her students develop a personal set of values.

b. Because one's set of values is such a personal matter, teachers should avoid value issues in the classroom.

23. a. Becoming a success is a matter of hard work. Luck has little or nothing to do with it.

b. Getting a good job depends mainly on being in the right place at the right time.

I MORE STRONGLY BELIEVE THAT:

24. a. Without the right breaks one cannot be an effective leader.
*
b. Capable people who fail to become leaders have not taken advantage of their opportunities.

25. a. There is too much emphasis on athletics in high school.
*
b. Team sports are an excellent way to build character.

26. a. It is hard to know whether or not a person really likes you.
*
b. How many friends you have depends upon how nice a person you are.

27. a. In my case getting what I want has little or nothing to do with luck.

b. Many times we might just as well decide what to by flipping a coin.

28. a. No matter how hard you try some people just don't like you.
*
b. People who can't get others to like them don't understand how to get along with others.

29. a. The amount and kind of homework assigned to students should depend upon the students' individual needs.

b. All students should be given the same amount and kind of homework so that it does not appear that the teacher favors certain students.

30. a. Reciting multiplication tables in the classroom is a valuable learning experience.
*
b. Buying food in the market is a valuable learning experience.

31. a. I have often found that what is going to happen will happen.
*
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

32. a. In the long run people get the respect they deserve in this world.

b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

33. a. There are certain people who are just no good.
*
b. There is some good in everybody.

I MORE STRONGLY BELIEVE THAT:

34. a. External standards must be abandoned when evaluating students; each student should be evaluated against his own personal standard.

    b. Since students must compete throughout life, it is necessary to set class standards against which each student is evaluated.

35. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

36. a. Heredity plays the major role in determining one's personality.

    b. It is one's experiences in life which determine what they're like.

37. a. The idea that teachers are unfair to students is nonsense.

    b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

38. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    b. There really is no such thing as "luck".

39. a. Valuable ideas for class projects come from textbooks.

    b. Valuable ideas for class projects come from students.

40. a. Some students will never be consistently successful in school.

    b. The school should be able to provide opportunity for consistent successful experiences for all students.

41. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

    b. There will always be wars, no matter how hard people try to prevent them.

42. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

43. a. Some students seek success outside of school because they are not successful in school.

    b. Some students don't care if they are successful in school as long as they are successful outside of school.

I MORE STRONGLY BELIEVE THAT:

44. a. Many of the unhappy things in people's lives are partly due to bad luck.

    b. People's misfortunes result from the mistakes they make.

45. a. Rote learning of facts can sometimes be effective in the classroom.

    b. Rote learning of facts should never be used in the classroom.

46. a. A good leader expects people to decide for themselves what they should do.

    b. A good leader makes it clear to everybody what their jobs are.

47. a. There should be more classroom discussion after students understand the objective of the lesson.

    b. There should be more classroom discussion when new material is being introduced.

48. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people, if they like you, they like you.

Interest Questionnaire

The following is a short questionnaire which can be used to assess the interest of persons involved in the Teaching Behavior Improvement Program. The first two questions are asked at the beginning of involvement and the last two at the conclusion of the Field Action Unit.

1. Why are you entering this Program?
2. What do you expect to gain from this Program?
3. a. Have you changed your mind as to what you expected to gain from this Program?
   b. If so, what has been the direction of change?
4. What is your reaction to the Program to date?

Program Evaluation Interview

The following is an interview guide used by the inservice leader or someone else to gather data for assessing the impact of the Program.

1. How beneficial has the MOREL program been for you?

   (1) the finest experience in teacher education I have ever had

   (2) outstanding

   (3) good

   (4) fair

   (5) poor

2. Have you changed your teaching behavior as a result of the program?

3. What specifically, have you changed?

   what teaching behavior:

   what attitudes:

4. How would you rate each of the following in terms of value and/or effectiveness in helping you assess and change your teaching behavior?

   (a) outstanding (b) good (c) fair (d) poor (e) no value

   the inquiry process you went through: (gather data, analyze data, practice new behavior, etc.)

   interaction analysis

   student feedback

   behavioral objectives & goal statements

   the small group of (4-5) teachers

the FAU leader

micro-teaching

teaching skills

learning the techniques yourself

using the techniques yourself

video tape

audio tape

5. We realize the success of any program such as ours depends to some extent on the leader. In your opinion:

   (a) To what extent is the success of the MOREL program dependent on the personality of the leader?

   (b) To what extent could the program operate successfully without strong leadership?

6. What was the single most significant part of the program?

7. What was the least significant part of the program?

8. Will you be using the program or any of its parts next year?

   (a) If so, what?

   (b) How?

Demographic Data Form

The following is a form used to gather demographic data on the teachers participating in the Field Action Unit. Such data are often helpful in comparing the effects of the Teaching Behavior Improvement Program.

Please check the appropriate response and fill in blanks where the need for more specific information is indicated.

1. Sex:

   1._____ Male 2._____ Female

2. Age:

_____ 1. 20-24
_____ 2. 25-29
_____ 3. 30-34
_____ 4. 35-39
_____ 5. 40-44
_____ 6. 45-49
_____ 7. 50-54
_____ 8. 55-59
_____ 9. 60 or over

3. What subject are you currently teaching?
(Please check subject(s) then fill in how many periods and at what grade levels).

		How many periods	Grade level
_____	1. Language Arts	_____	_____
_____	2. Social Studies	_____	_____
_____	3. Industrial Arts	_____	_____
_____	4. Math	_____	_____
_____	5. Science	_____	_____
_____	6. Physical Education	_____	_____
_____	7. Home Economics	_____	_____
_____	8. Foreign Language	_____	_____
_____	9. Art	_____	_____
	10. Music	_____	_____
	11. Self-contained Elementary	_____	_____
	12. Other: Please Specify	_____	_____
	_____	_____	_____
	_____	_____	_____

4. Educational Background: Please specify major where indicated.

_____ 1. High school diploma
_____ 2. 1-3 years of college
_____ 3. Bachelors Degree (indicate major) _____
_____ 4. Bachelors Degree plus some additional course work (major) _____
_____ 5. Masters Degree (majors) _____
_____ 6. Masters Degree plus some additional course work (majors) _____
_____ 7. Graduate Diploma/Education (majors) _____
_____ 8. Doctors Degree (majors) _____
_____ 9. Other (specify) _____

5. Number of years teaching:

_____ 1. Less than 1-2
_____ 2. 3-6
_____ 3. 7-10
_____ 4. 11-14
_____ 5. 15-18
_____ 6. 19-22
_____ 7. 23-26
_____ 8. 27-30
_____ 9. 31-34
_____ 10. 35-38
_____ 11. 39-42
_____ 12. Over 42

6. I read professional journals and/or periodicals regularly.
   _____1. Yes _____2. No

   They are:
   1. ____________________ 3. ____________________
   2. ____________________ 4. ____________________

7. Compared with other teachers in this school, I have attended professional education meetings which involve educators from more than one district.

   _____ 1. very frequently
   _____ 2. quite frequently
   _____ 3. about the same amount
   _____ 4. seldom
   _____ 5. rarely

8. Birth Date: Month _____ Day _____ Year _____

9. Social Security Number ____________________________
   (last three numbers)

We would appreciate any comment that you may have concerning the items in this questionnaire.

Thank you again for your patience and cooperation.

Responsibility Inventory

The following instrument is used with students of the teachers participating in the Teaching Behavior Improvement Program. Each item is scored 1 if the internal response (perception of internal control or influence over events) is made and 2 if the external response (perceptions of external control over events) is made. Score the item as a 1 if A is chosen and a 2 if B is chosen except those marked with an *. On those the process is reversed A = 2, B = 1.

These are questions about how you feel things actually are in life. Each question has two parts: one part lettered A, the other B. Please pick the one part of each pair (and only one) which you more strongly believe to be true as far as you are concerned. Darken in the space under the letter (A or B) on the answer sheet. Be sure to pick the one you really believe to be more true, not the one you think you should choose or the one you would like to be true. There are no right or wrong answers; you are just saying what you think is true.

Please answer these questions carefully, but do not spend too much time on any one question. Sometimes you may believe both parts; other times you may not believe either part. When this happens be sure to mark the one you more strongly believe to be true as far as you are concerned. Please answer every question.

THE STATEMENT THAT I THINK IS MORE OFTEN TRUE:

1. a. Children get into trouble because their parents punish them too much.
*
   b. The trouble with most children is that their parents are too easy with them.

2. a. Many of the unhappy things that happen to me are not my fault.
*
   b. Unhappy things often happen to me because of the mistakes I make.

3. a. Most of the time children get the respect they deserve from others.

   b. Many times a child can try real hard and no one will pay attention to him.

4. a. Most of the time teachers are fair to students.

   b. Teachers will often change a student's grade because of little things that happen.

5. a. Unless you are lucky you cannot be a good leader.
*
   b. Anyone can be a leader if he tries.

THE STATEMENT THAT I THINK IS MORE OFTEN TRUE:

6. a. Usually other people choose me for a friend.
*

b. Usually I choose my own friends.

7. a. Most of the time, I have found that what is going to happen will happen.
*

b. I always try to plan ahead--I don't depend on luck.

8. a. If you study you will do well on a test.

b. People who score the highest on a test are lucky.

9. a. Doing well in school is a matter of hard work; luck has little or nothing to do with it.

b. Doing well in school depends on studying the right things at the right time.

10. a. Any student can help change what happens in school.

b. This school is run by a few kids; there is not much I can do about it.

11. a. When I make plans, I am almost sure that I can make them work.

b. It is not too good to plan too far ahead because many things turn out to be a matter of good or bad luck anyhow.

12. a. People who have friends are very lucky.
*

b. A person who tries makes new friends.

13. a. For me, getting what I want has little or nothing to do with luck.

b. Many times we might just as well decide what to do by flipping a coin.

14. a. Who gets to lead the class often depends on who was lucky enough to be in the right place first.
*

Who gets to lead the class depends on who has the most ability; luck has little or nothing to do with it.

15. a. Most kids don't realize how much what happens to them depends on luck.
*

b. There is really no such thing as luck.

THE STATEMENT THAT I THINK IS MORE OFTEN TRUE:

16. a. One should always be willing to say when he makes a mistake.

    b. It is usually best to cover up one's mistake.

17. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice you are.

18. a. Unless you are lucky, you cannot get kids to do what you want.

    b. Getting kids to do the right thing depends on ability; luck has little or nothing to do with it.

19. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. The grades I get depends upon how hard I study.

20. a. A good leader lets kids decide for themselves what they should do.

    b. A good leader makes it clear to everybody what their jobs are.

21. a. Many times I feel that I have nothing to do with things that happen to me.

    b. I do not believe that chance or luck has anything to do with what happens.

22. a. Children are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to make friends; if people like you they like you.

23. a. What happens to me is my own doing.

    b. Sometimes I feel that I do not have enough control over what happens to me.

24. a. Knowing the right kids in class is important in doing well in school.

    b. You can do well in school if you have the ability and do a good job.

25. a. The teacher usually chooses kids for class leaders who deserve being chosen.

    b. It is hard to know why some kids get chosen to be class leaders and others don't; it doesn't seem to have anything to do with their ability.

26. a. Kids who don't do well in school often work hard but they just seem to have bad luck.

    b. If kids don't do well in school it's their own fault.

THE STATEMENT THAT I THINK IS MORE OFTEN TRUE:

27. When you do well on a test at school, is it more likely to be
    a. because you studied it, or
    b. because the test was especially easy?

28. When you have trouble understanding something in school, is it usually
    a. because the teacher didn't explain it clearly, or
    b. because you didn't listen carefully?

29. When you read a story and can't remember much of it, is it usually
    a. because the story wasn't well written, or
    b. because you weren't interested in the story?

30. If people think you're bright or clever, is it
    a. because they happen to like you, or
    b. because you usually act that way?

31. Suppose you became a famous teacher, scientist or doctor. Do you think this would happen
    a. because other people helped you when you needed it, or
    b. because you worked very hard?

32. Suppose you did better than usual in a subject at school. Would it probably happen
    a. because you tried harder, or
    b. because someone helped you?

33. When you find it hard to work arithmetic or math problems at school, is it
    a. because you didn't study well enough before you tried them, or
    b. because the teacher gave problems that were too hard

34. When you find it easy to work arithmetic or math problems at school, is it usually
    a. because the teacher gave you especially easy problems, or
    b. because you studied your book well before you tried them?

35. If a teacher didn't pass you to the next grade, would it probably be
    a. because she "had it in for you", or
    b. because your school work wasn't good enough?

36. Suppose you don't do as well as usual in a subject at school. Would this probably happen
    a. because you weren't as careful as usual, or
    b. because somebody bothered you and kept you from working?

Appendix K

DOCUMENTATION MATERIALS

Introduction

Persons implementing the Teaching Behavior Improvement Program will want to record data that helps them determine the effectiveness of the Program. The evaluation design analysis of the data and suggested procedures for evaluating the Program are contained in Chapter IV of this report. However, the day to day records the inservice leader keeps on progress are invaluable. The following material was designed so the leader could keep careful records of events as they happened. The documentation material is to be used to record all activities of the teachers who are involved in the Teaching Behavior Improvement Program to determine what changes are brought about and to what, specifically, these changes can be attributed.

On the following pages are instructions for using the documentation materials and a sample page for each of the three records the inservice leader might keep. Of course, the inservice leader may want to develop his own forms, but these are offered as suggestions.

Section A (FAU)

All activities of the FAU shall be documented in the following manner. (Any meeting with two or more teachers should be documented in this section.) Every time there is an FAU meeting, full documentation should be made in this section of the Manual.

1. Activity
    a. List the activity of the particular FAU meeting in question.
       Example: introduction to IA coding
    b. List the materials used.
       Examples: (1) chapters one and two of Role of the Teacher in the Classroom
       (2) IA categories p. 14 Role of the Teacher in the Classroom
2. Results
    a. Document any results of this activity.
       Examples: (1) all teachers learned the purposes of IA coding
       (2) all teachers have a "nodding acquaintance" with IA categories
3. Remarks
    a. List any information that would be useful in compiling data about the group processes involved in the FAU. (These remarks may be subjective or objective in nature and may include such items as what worked and why or what did not work and why.)
       Examples: (1) The teachers showed a tremendous interest in IA as evidenced by the lively discussion and the kind of questions they asked.
       (2) Sam Jones liked the IA categories but did not see any relevance for his classroom.

Section B--Individual Teacher Activity

All activities of the individual teachers in the FAU shall be documented in the following manner. Every time there is activity with any teacher it should be documented in his respective section of the Manual. It is our hope that this section on each teacher will develop into a continuing detailed account of what the teacher has done in the FAU.

1. Activity
    a. List the activity in which the teacher is involved.
    Example: coded IA training tape exercises 1 and 2
2. Time spent
    a. Indicate the amount of time that is spent in conducting the activity.
    Examples: (1) five minutes of actual coding
    (2) 30 minutes of discussion after coding
3. Where
    a. Indicate the place in which the activity takes place
    Example: Smith's classroom--after school
4. Results
    a. Indicate any results of the activity.
    Example: Ann coded at 45% accuracy
5. Remarks
    a. Teacher or FAU leader initiated
    b. List any additional information that would be useful in compiling data about this teacher. (These remarks may be subjective or objective in nature.)
    Example: This is Ann's initial attempt to code. She was obviously nervous.
    c. Reason for choosing activity (include definition of problem and desired student behavior if possible).

The skill development cycle for each individual teacher shall be documented in the teacher's respective section of the Manual in the following manner. (This documentation will be done for each skill selected by the teacher.)

1. Write in the date on which a skill is selected to work on.
2. Identify the skill that is selected (see the MOREL Teaching Skills Manual).
3. Identify any components of the particular skill that the teacher is developing.
    Example: The skill is questioning. The component is probing questions.
4. Identify the mode (modes) of practice that the teacher used to develop the skill.
    Examples: (a) role playing in the FAU
    (b) micro teach
5. Indicate any results of the skill practice.
    a. Be sure to save all student feedback or special coding for each skill a teacher develops.
    b. Results may be determined by doing pre and post coding in the classroom using subscripted category systems.
    c. Results may be determined by using pre and post student reaction forms.

6. Write in the date on which the skill development cycle is completed.

Checklist of Teacher Behaviors

The check list of teacher behaviors shall be used in the following manner:

1. Month and day is to be entered on the line with teacher behavior and mode for evaluation.
2. Any scores that the teacher receives for any of the listed behaviors should be entered in the appropriate spaces.
   Example:

Teacher Behavior	Mode for Evaluation	12/3	12/10	12/17
IA Coding (criteria tape)	% accuracy	.45	.70	.72

3. Any teacher behaviors not listed on the checklist should be written in on the blank checklist form.

The FAU

Activity
Results
Remarks

FAU#______________________

Date______________________

FAU Leader______________________

Individual Teacher Activity

ACTIVITY	TIME SPENT	WHERE
RESULTS		
REMARKS		

TEACHER____________________

DATE____________________

FAU LEADER____________________

Checklist of Teacher Behaviors

TEACHER BEHAVIOR	MODE FOR EVAL.	MONTH/DAY																
I.A. coding (criteria tape)	% accuracy																	
I.A. coding (another teacher)	% accuracy																	
I.A. coding (self)	% accuracy																	
I.A. coding (subscripting)	% accuracy																	
Build matrix (prepared data)	% accuracy																	
Build matrix (actual data)	% accuracy																	
Interpret matrix (prepared)	% accuracy																	
Interpret matrix (actual)	% accuracy																	
Identify components I.A. category	number identified																	
Use VTR	actual 5 min sequence																	
Use audio tape recorder	actual 5 min sequence																	
Construct student feedback instru.	relate data to problem																	
Using data	number of alternatives																	
List alternative method of gathering data	number of alternatives																	
List examples of nonverbal comm.	number of examples																	
Identify three components of 3 skills	number of components																	

Teacher____________________________

FAU Leader____________________________

Appendix L

RESOURCE PERSONS

On the following pages are three lists of persons who have been involved in one way or another with the Teaching Behavior Improvement Program. The first is a list of those who have been most highly involved in the development and implementation of the Teaching Behavior Improvement Program and the Leader Training Program. These persons were members of the Teacher Education Division of the Michigan-Ohio Regional Educational Laboratory. The second list consists of other former MOREL staff members who have familiarity with the Teaching Behavior Improvement Program and the Leader Training Program as a result of having worked with or in the Teacher Education Division in the past. The third list consists of persons who were trained in Leader Training Workshops by MOREL to implement the TBIP in their schools.

Former Members of MOREL's Teacher Education Division with current addresses

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